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INDEX TO VOLUME LIX

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## Aortic Saddle Embolus

*“ . . . one of the Few True Emergencies in Medicine . . . ”*

J. L. MORGAN, M.D., and J. J. HOVORKA, M.D., Emporia

The occurrence of a saddle embolus of the aorta with sudden blockage of the arteries to the legs is one of the few true emergencies in medicine. Too often we do not anticipate its occurrence, and all too often we fail to diagnose and act vigorously to save the legs or even the life of the affected patient.

### Incidence

Actual incidence of this awesome complication is difficult to estimate, since, understandably, only successfully treated cases are dramatic enough to occupy space in medical journals. It has been reported that in Indianapolis, with 2,000 hospital beds, this problem is faced about three times yearly. In the 200 beds here in Emporia, in the past five years, there have been 11 peripheral emboli in addition to this solitary instance of a diagnosed aortic embolus. Five of these 11 were popliteal, three iliac, two femoral; one patient had multiple emboli. In different series, saddle emboli constitute between 5 and 15 per cent of all peripheral emboli. The recent increase in the number of operations on the heart is increasing the incidence of saddle emboli since they occur as postoperative complications.

### Etiology

The embolus which lodges at the aortic bifurcation usually originates in the left side of the heart. Stasis of the blood flow, as in auricular fibrillation and in other arrhythmias, and the pooling of blood at cardiectomy are the most common background causes. Injury of the endocardium, as from a coronary occlusion, may present a sticky surface on which a clot

forms, later to be dislodged and migrate to the iliac bifurcation. A general increase in the clotting ability of the blood has not been stressed as a prelude to the inception of saddle emboli.

The usual causes of aortic emboli are listed in Table I. Unusual causes are listed in Table II and are of interest because of their bizarre nature rather than their frequency.

### Pathogenesis

The pathogenesis of this condition may be stated to be the formation of a clot or the existence of a

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**Saddle embolus of the aorta is a true medical emergency which is infrequent, but when it occurs it must be attacked surgically without delay. We are often alerted by the presence of an arrhythmia, particularly in mitral valvular disease, and more recently saddle embolus has been presaged by the pooling of blood during cardiectomy.**

**In the illustrative patient reported here with rheumatic mitral valve involvement and paroxysmal tachycardia, the complicated course was brightened by the fact that she was in the hospital when her embolus lodged at the aortic bifurcation, which permitted timely diagnosis and treatment.**

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TABLE I  
COMMON CAUSES OF AORTIC EMBOLI

1. Decrease in the velocity of cardiac blood flow
  - a. Arrhythmias—especially auricular fibrillation in connection with rheumatic mitral stenosis with thrombus formation
  - b. Cardiotomy with thrombus formation during cardiac immobility
  - c. Congestive heart failure with thrombus formation, especially in the left auricle
  - d. Rapid changes in heart rate due to digitalis therapy or its rapid withdrawal
2. Endocardial and valvular damage
  - a. Disease of the aortic or mitral valves with thrombosis of the endocardium
  - b. Myocardial infarction with thrombosis forming on the damaged myocardium and later dislodgment
  - c. Dislodgment of mitral valve vegetations
  - d. Sepsis of the umbilical cord in infants, with myocardial degeneration and thrombus formation

foreign body proximal to the iliac bifurcation, which becomes dislodged from its moorings, travels in the aorta, and lodges at the Y of the bifurcation. The denial of the oxygen need of the legs leads to the classic changes of painful ischemia progressing to gangrene and loss of tissue, if the arterial block is not removed.

### Diagnosis

The diagnosis is made by associating the predisposing cause such as a cardiac arrhythmia or commisurotomy with the so-called "five P's," namely Pain, Pallor, Paralysis, Pulselessness, and Paresthesias.

Pain has been blamed variously on the distention of the aorta, on arterial spasm distally, and on muscle ischemia. It is sudden and is the first symptom in at least half of the patients, though it may be absent for as long as several hours until ischemia sets in. Usually the pain is simultaneous in both legs. Ordinarily it is agonizing and radiates down the legs, though there have been a few instances when the onset was insidious with a sensation of pins and needles merging into the typical severe misery.

The pallor of aortic occlusion from a saddle embolus has been thought to differ from the "marbling" of the skin seen in aortic thrombosis.

Paralysis is common after the first few hours, but it may be overlooked because of the dominance of concern for the pain.

Pulselessness is the sine qua non for the diagnosis, and the absence of pulses from the iliac arteries down makes the diagnosis secure.

TABLE II  
RARE CAUSES OF AORTIC EMBOLI

1. Decrease in the velocity of cardiac blood flow from arrhythmias such as auricular fibrillation *without* organic heart disease
2. From endocardial or vessel wall damage
  - a. From calf vein phlebitis through a patent foramen ovale
  - b. Dislodgment of a propagating thrombus in the pulmonary veins
  - c. Migration of a pulmonary valve thrombus through a ventricular septal defect
  - d. Thrombosis in an aortic aneurysm with emboli distally
  - e. Thrombosis in a closing patent ductus arteriosus
  - f. Migrating tumor fragments from a myocardial myxoma
  - g. Syphilitic aortitis with dislodgment of plaques
  - h. Migration of a bullet lodged in the heart
  - i. Dislodgment of atheromatous aortic plaques
  - j. Trichinosis of myocardium with thrombus dislodgment
  - k. Tuberculosis of myocardium with thrombus dislodgment
3. From increased coagulation of the blood
  - a. During closure of a patent ductus in a newborn baby with polycythemia and enhanced coagulability allegedly secondary to the polycythemia

The paresthesias are characterized by numbness, coldness, and tingling in varying combinations.

The clinical picture of complete obstruction may change in a few hours if the embolus at the bifurcation breaks up and slips to a lower level, then presenting the picture of femoral or popliteal occlusion.

### Differential Diagnosis

Conditions which might in occasional instances mimic saddle embolus of the aorta are listed in Table III.

Actually the sudden onset and rapid progression of

TABLE III  
CONDITIONS OCCASIONALLY CONFUSED  
WITH SADDLE EMBOLUS

- Thrombosis of the aorta, especially from trauma
- Dissecting aneurysm
- Arterial spasm accompanying thrombophlebitis
- Acute intestinal obstruction (in youngsters)

leg pain, paralysis, paresthesias, and pallor in a patient with organic heart disease and arrhythmia, and the finding of pulselessness in the iliac arteries bilaterally makes the diagnosis of saddle embolus almost incontestable.

## Treatment

1. *Surgical versus non-surgical management:* Evaluation of treatment depends on the definition of "cure" and the proof of cure. Criteria for "cure" have varied from the saving of life to complete restoration of circulation for at least three weeks postoperatively. Occasionally even the loss of leg tissue has not vetoed the classification as a "cure." Bauer<sup>4</sup> first successfully removed a saddle embolus in 1913, and in 1956 a survey reported 44 survivors following embolectomy, though of course embolectomy failures are not reported.

By 1954, in comparison, 21 patients were allegedly saved following conservative treatment, though only one well documented case, a patient later examined at autopsy, was reported.

Without surgical intervention the mortality has been listed as 75 to 95 per cent. As for aortic embolectomy, one series of 17 cases showed a mortality of 14, or 82 per cent.

From an exhaustive review of the literature it would appear that the great majority of observers advocate prompt surgical removal of the embolus once the diagnosis is made. There are a few who recommend non-surgical treatment either as a prelude to surgery or as a substitute for operation, particularly if there is a delay between onset and diagnosis (Table IV). After surgery, many of the measures listed in Table IV are widely used.

It is generally agreed that surgery should be performed as soon as the diagnosis is made, and to deliberately delay surgery while non-surgical measures are used would seem to be a breach of technic.

Age has been no absolute deterrent to surgery, one patient of 74 having survived operation.

One patient survived two aortic embolectomies for a period of five years.

It would seem that the conservative treatment of aortic embolism is surgical removal of the embolus as soon as the diagnosis is established.

2. *Timing:* It has been paraphrased that saddle emboli of the aorta should be treated with the same promptness as a perforated stomach ulcer, and this means preferably within the first six hours after onset. There is apparently no critical time, however, beyond which surgery should not be considered, since successful embolectomies have been reported at 25, 26, 32, and 33 hours after onset, and one recent case report detailed a successful embolectomy five weeks after the occurrence of the embolism.

3. *Anesthesia:* Spinal anesthesia has been the anesthesia of choice because it provides relaxation of abdominal muscles and a contracted state of the small bowel. One author does caution that spinal anesthesia may relax peripheral vessels and allow the embolus to migrate. Continuous spinal anesthesia with a Huber needle every four hours for 48 hours postoperatively was recommended in one report.

4. *The surgical approach:* A direct approach on the embolus may be made by an aortotomy, or the embolus may be approached indirectly through the iliac or femoral vessels. If an abdominal exposure is planned, the incision may be transperitoneal or retroperitoneal.

Actual exploration of the embolus makes more certain the complete removal of the clot. An extra-peritoneal approach in obese patients occasionally has been thought to make for easier retraction of the intestines. The transperitoneal approach more readily permits a sympathectomy if this procedure is deemed advisable, though a retroperitoneal approach does supposedly allow accessibility to one sympathetic chain with a minimum of postoperative ileus. Actually the choice of transperitoneal or retroperitoneal approach rests with the surgeon.

Much has been written about the mechanism of occluding the aorta and iliac arteries during surgery. Many favor digital compression only, but other devices have been used such as rubber tubing, braided cotton tapes, Crile clamps, and Bethune lobectomy tourniquets. Certainly too vigorous constriction may fracture an arteriosclerotic plaque with subsequent distal embolism.

5. *Sympathetic block and sympathectomy:* Sympathetic block with procaine has been advised as a prelude to surgery, particularly if surgery is delayed, as a means of increasing peripheral circulation. On the other hand, there is some feeling that lumbar sympathetic block is contraindicated because the resulting vascular relaxation may allow an embolus to pass to

TABLE IV  
NON-SURGICAL MEASURES

1. Don't apply heat
2. Don't elevate the legs
3. Vasodilating drugs, e.g. papavarine
4. Anticoagulants
5. Sympathetic block with procaine
6. Sympathectomy
7. Buerger's exercises
8. Intermittent venous occlusion
9. Spinal anesthesia

a more distal artery. There is admittedly a real danger in doing sympathetic block during anticoagulant therapy since hematomas have resulted from this therapeutic incompatibility.

Sympathectomy, either peri-arterial or of the chain itself, has been used at the time of surgery, and the desired accessibility of these nerve areas has influenced the type of exposure. Those advising against sympathectomy at the time of surgery point out that this procedure may result in a fall of blood pressure and a slower blood flow with an extension of the clot.

6. *Anticoagulants*: The majority of those with experience favor anticoagulants preoperatively, locally at the time of surgery, or postoperatively to prevent thrombosis distal to the embolus. As a result of occasionally annoying and dangerous bleeding, a few observers shy away from anticoagulants and use as a substitute reflex vasodilatation with heat and vasodilator drugs.

Those who advise heparin preoperatively do so only if sympathetic block and sympathectomy are not planned and advise neutralization of the heparin with protamine immediately preoperatively.

Those who use heparin at operation inject 50 to 100 milligrams into the aorta prior to closure of the incision.

Postoperatively heparin is usually continued intravenously every four hours until the prothrombin time is sufficiently prolonged by Dicumarol or similar drugs, and this usually takes one to three days. The duration of anticoagulant therapy with Dicumarol and similar drugs is an individual decision variously advised from three days to ten days, or even for years if the embolus follows coronary occlusion.

7. *Auriculectomy*: Amputation of the left auricular appendage has been advised after an embolectomy when it is felt the embolus arose in the auricle. Aortic embolism has occurred during adequate anticoagulant therapy with Dicumarol, and autopsy has subsequently disclosed the auricular appendage as the site of the embolus. Particularly has auriculectomy been considered indicated when the heart continues to fibrillate after embolectomy.

Mitral commissurotomy has been advised after an embolectomy in addition to auriculectomy when mitral stenosis exists, since auriculectomy has been felt to be inadequate alone if mitral stenosis exists. If auriculectomy is done, it should probably be more complete than that usually done at commissurotomy since in one patient an aortic embolus occurred two months after auriculectomy performed at the time of commissurotomy.

One recent article advises *emergency* mitral valvulotomy plus atrial appendectomy in patients with mitral stenosis prior to aortic embolectomy. This was

successfully done in one patient with aortic embolism of six hours' duration, the time for the combined procedure being four hours and five minutes.

### Complications

Enthusiasm for early embolectomy is considerably tempered by a long-time survey of the survivors of operation. In 1951 a review of 27 patients who had had successful embolectomies revealed that only two were alive after five years. The underlying cause of the embolism (see Table I) and the advanced age of many of the patients account for the poor long range prognosis.

In 9 of 16 cases, other emboli occurred before or after aortic occlusion. Widespread thrombosis may persist after embolectomy because of the accompanying spasm and intimal damage.

It is common for the distal pulses to take up to three weeks to return because of small distal emboli and slowness in formation of the collateral circulation. The patellar and Achilles tendon reflexes may take up to 12 months to return after embolectomy.

### Case Report

Mrs. C. G., a 53-year-old white farmwife, was admitted to the hospital on October 21, 1955 and dismissed on November 30, 1955, a total stay of 41 days.

She was admitted at 2:00 p.m. An attack of rapid irregular heartbeat had developed suddenly at 8:00 a.m. the day of admission and persisted despite treatment.

Since 1940 she had experienced many bouts of paroxysmal tachycardia, and since 1948 she had been hospitalized six times for this difficulty, though her predominant rhythm was sinus in origin between attacks. She had been noted to have a grade ii systolic apical murmur in 1948, and this had persisted unchanged. She had her "inflammatory rheumatism" at age 14, lasting three months.

On physical examination she appeared to be a pale, red-haired housewife lying comfortably in bed. Her blood pressure was 94/82. There was no goiter. Her apical heart tones were of a tic-tac quality, and the apex rate was 192 compared to a radial rate of 72. No murmurs were heard at this fast rate. Her peripheral leg pulses were patent.

A chest x-ray on admission showed no cardiac enlargement.

Her electrocardiogram on admission showed a supraventricular tachycardia with a rate of 180.

Five hours after admission the tachycardia converted to normal sinus rhythm following intravenous Vasoxyl therapy, and this rhythm prevailed for several days.

On November 1, 1955, nine days after admission,



at 7:15 a.m. when the patient was on her way to the bathroom to brush her teeth, she noticed sudden pain throughout both legs and the rapid onset of numbness and coldness. On examination at 7:30 a.m. both feet were found to be cold from the ankles down, and there was cyanosis of the nail beds. All leg pulses were absent. She could wiggle her toes only with difficulty. Three hours later the legs were cold from the mid-thigh down, and her pain had become agonizing. The diagnosis of an occlusion at the aortic bifurcation was made, and it was decided to proceed without delay with embolectomy which was begun at 11:20 a.m. (four hours after onset of symptoms) and was completed at 1:10 p.m. (duration one hour and 50 minutes).

The detailed procedure of the embolectomy was as follows:

Under spinal anesthesia (15 mgm. Pontocaine), the abdomen was opened through a lower midline transperitoneal approach. The small bowel was packed from the operative field. Direct examination revealed a well organized, firm, fixed embolus at the bifurcation of the aorta, extending upward 2.5 to 3 cm. and blunted Y-shaped tips extended about 1 cm. into the iliac vessels, forming a complete obstruction.

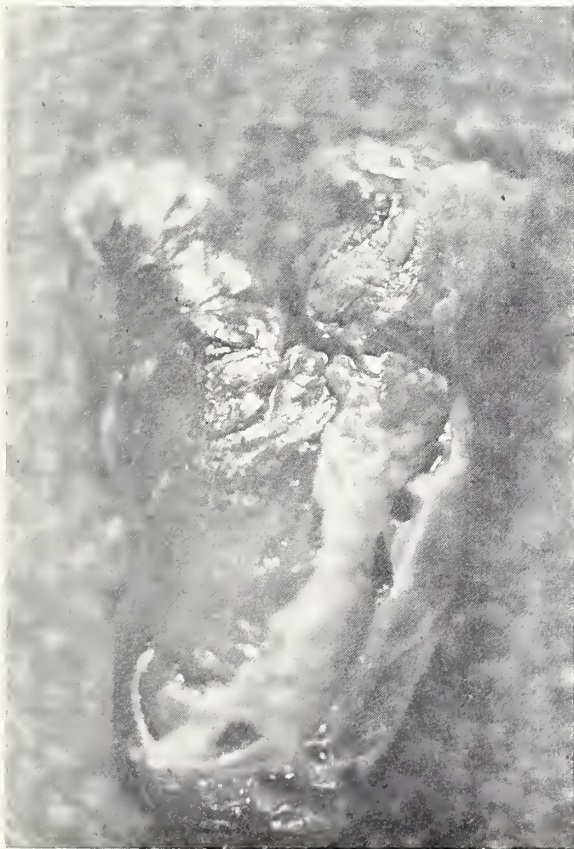


Figure 1.

Embolectomy was performed by incising the peritoneum 4 to 5 cm. directly over the embolus. The aorta above the embolus was mobilized by blunt dissection, sufficient to permit the passing of a soft penrose rubber tape (1 cm.) around it, to be used as a tourniquet. This was held in place by a right angle gallbladder clamp.

The aorta was incised longitudinally, about 2 cm., to permit the removal of the embolus. This was accomplished readily, and the smooth blunted ends indicated its complete removal. The tourniquet was momentarily released, flushing the proximal wound. A number 12 soft rubber catheter was passed downward into the iliac vessels and flushed with sodium citrate 2 per cent and Ringer's solution.

The aortic incision was closed with continuous 4-0 oiled silk, reinforced with silk mattress sutures. One hundred mgm. heparin in 10 cc. of saline was injected into the aorta, and the tourniquet was removed. A 1 x 3 in. Gelfoam pack was inserted over the suture line, and the peritoneum was closed with 3-0 chromic continuous sutures.

The abdomen was closed with chromic 2-0 continuous suture in the peritoneum, chromic 0 interrupted in the fascia, chromic 3-0 in the subcutaneous tissues, and dermal in the skin.

The embolus when removed appeared as shown in Figure 1 and measured 2 x 3.2 x 1.2 cm.

After operation the patient's legs were warm to touch and she could wiggle her toes with ease. The iliac arteries were palpable in both legs, but the more distal arteries were not pulsating. Her electrocardiogram postoperatively showed predominantly sinus rhythm with periods of sinus arrhythmia and a shifting pacemaker.

Five hours postoperatively there was bleeding from the lower edge of her dressing and this was estimated to be 150 cc. This was thought to be due to the heparin administered at the time of surgery. Dicumarol was started as soon as the patient was able to swallow postoperatively.

In the days following operation the patient developed several annoying arrhythmias varying from paroxysmal supraventricular tachycardia with delayed intraventricular conduction (November 3, 1955) to auricular flutter with varying degrees of block (November 12, 1955).

Despite what was felt to be adequate Dicumarol therapy, on the seventh postoperative day she began to cough and had pain in the left upper chest. A chest x-ray showed an area of linear density in the left upper lung field, and this was felt to represent a pulmonary infarct. Twenty-one days postoperatively she developed a tender indurated discolored area over the left greater saphenous vein, thought to be throm-

bophlebitis, again occurring during apparently adequate Dicumarol therapy.

Thirty days after operation, she was dismissed to her daughter's home, taking Dicumarol, with prothrombin times done twice weekly. Both feet were fairly warm. Both iliacs, popliteals, and the left posterior tibial artery were palpable. The right dorsalis pedis, right posterior tibial, and left dorsalis pedis arteries were not pulsating.

Her course at home was no less eventful than her stormy hospital stay. Six days after dismissal and 36 days after operation, she suddenly developed left arm and left leg weakness and a convergent strabismus. This was felt to herald a cerebral embolus originating in the heart, again occurring during adequate Dicumarol therapy. Her hemiplegia and strabismus cleared within three weeks except for a slight postural vertigo which still occasionally bothers.

She was continued on Dicumarol therapy for 80 days postoperatively.

Because of the possibility of mild hyperthyroidism as a contributory factor in her paroxysmal tachycardia, a radioactive iodine tracer study was done three months postoperatively, and this was reported as being within the normal range.

She was last seen April 24, 1957 as an office patient. She felt quite well except for mild postural vertigo. She was doing all of her own housework and was apparently as active as before her aortic embolus. She had had no bouts of tachycardia since surgery and was taking only maintenance doses of quinidine sulfate and digoxin. She still had a grade ii localized apical systolic murmur. The right foot felt slightly warmer than the left, though she was not conscious of any sensitivity to cold. The venous filling time in the right foot was 14 seconds and in the left foot 25 seconds. All leg pulses bilaterally were widely patent except the left dorsalis pedis artery.

Emporia Gazette Building  
Emporia, Kansas

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# Anaphylactic Reaction

## *A Violent Reaction to Topical Penicillin*

CURTIS A. NYSTROM, M.D., *Cawker City*

Mrs. H., age 67, a white female, noticed a sore area in her mouth at 1:25 p.m. on September 3, 1955. She broke up a penicillin tablet and placed one-fourth of it on the raw area. Almost immediately her lip began to swell, and she complained to her husband of a numbness increasing in her legs. She felt cold and sweaty and began to faint.

He rushed her to our clinic, which took four to five minutes. As they traveled she complained of having increasing difficulty with her vision. On entering the waiting room she fainted. Her blood pressure was unobtainable, but her heart beat was regular, though faint to auscultation. Her skin was wet and clammy. She could not be roused by strong stimuli.

She was given Solu-Cortef, 100 mg. IV at 1:35; Adrenalin, 0.5 cc. subcutaneously at 1:40; Benadryl, 5 cc. intramuscularly, and Adrenalin, 0.3 cc. subcutaneously at 2:00; Adrenalin, 0.3 cc. subcutaneously at 2:15; Solu-Cortef, 100 mg. IV and Adrenalin, 0.3 cc. subcutaneously at 2:30. Her blood pressure was unobtainable during all this time, but the heart was beating regularly though faintly. Her breathing was not rapid but was very shallow. She did not respond to her name or to painful stimuli until 2:45. At that time her breathing improved and her blood pressure was 90/65. Since directions on Solu-Cortef suggest continuing with decreasing dosage, she was given

50 mg. intravenously at 4:30, 7:30, and 11:30 and 50 mg. intramuscularly at 11:30.

She was not hospitalized since she was kept at the clinic until 5:00 and was feeling quite well when seen at 7:30. She came in five days later and was given a B-12 1000 mcg. shot for moderate fatigue.

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**This case report describes a severe reaction due to penicillin, treatment administered, and data on the patient's recovery.**

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We saw the patient again in October, 1955, when she was having small areas of ulceration on her legs which were originally caused by insect bites. These responded to oral Vitamin C, 50 mg. four times a day, and A and D ointment locally.

The last occasion on which she was seen was in December, 1955, and that was for a small ulceration in her mouth, possibly herpes. This was handled with silver nitrate cauterization.

This case was of particular interest to me as I had been in practice for only 33 days at that time. We were pleased that the patient responded to treatment, even though the treatment had to be drastic. (Incidentally, I had not prescribed the penicillin for her.)

# Chemotherapy in Tuberculosis

## *Report of Committee on Chemotherapy and Antibiotics American College of Chest Physicians*

### General Considerations

At this writing there is no generally accepted optimum regimen in the chemotherapy of pulmonary tuberculosis. Streptomycin (SM), aminosalicylic (PAS) formerly para-aminosalicylic acid, USP XIV, and isoniazid (INH) are the three most commonly used drugs, but there is no unanimity of opinion as to which combination of these is most effective. However, it is emphasized that the best results are obtained when two or more drugs are combined and given continuously for a prolonged period of time. In general, it is probably unwise ever to treat a case of clinically active tuberculosis with one drug alone unless other drugs are contraindicated. Chemotherapy should be given for at least a year even in minimal cases and in advanced cases for a total of 18 to 24 months or at least until the stage of inactive disease is reached.

In all cases of tuberculosis, efforts should be made to culture the tubercle bacilli initially and to determine drug susceptibilities. This is essential in retreatment cases. Susceptibility studies are especially important if cultures remain positive, for changes in drug therapy may be based on changes in susceptibility.

### Specific Drugs

The following drugs are useful in treating tuberculosis:

*Isoniazid* is a potent drug. It is effective at low concentrations, is readily absorbed, and penetrates all tissues of the body. It is easily administered and is relatively nontoxic with good patient acceptance. The most commonly accepted dosage of INH at the present time is 4 to 5 mg. per kg. of body weight daily, in two or three divided doses. It is estimated that some individuals will have inadequate serum levels of INH as measured by bio-assay on this dosage level. Evidence is at hand that about 85 per cent of patients with new tuberculosis will do well on standard doses of INH (300 mg. per day) in combination with other effective drugs. In the other 15 per cent, particularly in patients with more advanced disease with large or multiple cavities, it is probably advisable to individualize the dosage of the drug with consideration given to higher dosage. Toxic effects of this drug, particularly peripheral neuritis, are commoner at the higher levels and pyridoxine (100 mg. per day) must be administered concurrently whenever the higher dos-

ages are to be used. Hypersensitivity reaction may occur in the use of this drug as with streptomycin or PAS.

There are two major facts to be kept in mind in the use of INH: (1) As with most of the other effective drugs the tubercle bacilli readily becomes resistant to this drug when it is administered alone; (2) Isoniazid is degraded in human subjects into several derivatives such as acetyl-isoniazid which are biologically inactive; such inactivation varies significantly from individual to individual. Serum levels of this drug determined by the standard chemical methods will not reveal the inactivation, but it will be evident if bio-assay methods are used.

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**This report, released by Murray Kornfeld, executive director of the American College of Chest Physicians, is intended as a progress report or statement on currently accepted principles and practice, not as a detailed treatise for chemotherapy. It may be used as a guide by the physician treating tuberculosis.**

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*Streptomycin and Dihydrostreptomycin* continue to be among the most effective antituberculosis agents at our disposal. Each has the same therapeutic value and the dosage is the same for both. They are generally administered in a dosage of at least 1 gm. twice weekly by intramuscular injection. In this dosage streptomycin rarely causes vestibular damage and dihydrostreptomycin rarely results in deafness. In an effort to avoid these rather remote possibilities some physicians prefer a combination of streptomycin 0.5 gm. and dihydrostreptomycin 0.5 gm. In studies reported by the British Medical Research Council it was evident that, when administered in combination with daily INH, streptomycin was more effective in preventing the emergence of INH resistant organisms when given in daily dose of 1 gm. as compared with dose of 1 gm. twice weekly. Preliminary reports are appearing indicating that in some patients, particularly those with advanced disease, intermittent streptomycin may be less effective than daily administration of 1 gm. of this drug. It may be advisable to give streptomycin in doses of 1 gm. daily for at least 30

days to a patient severely ill on admission before reverting to intermittent therapy. Hypersensitivity to streptomycin occurs occasionally and is manifested by fever, rash and sometimes exfoliative dermatitis. In patients with less severe reactions desensitization may be accomplished by starting with a very small dose and gradually increasing; with more severe reactions desensitization may be hazardous and probably should not be attempted. Occasionally, a patient hypersensitive to streptomycin may be able to tolerate dihydrostreptomycin and vice versa.

*Aminosalicylic Acid* remains an important agent in the antimicrobial therapy of tuberculosis due to its ability to prevent or postpone resistance to streptomycin and INH; and to its ability to enhance the serum levels of active INH. Many forms of this drug are on the market from the acid product to sodium, potassium and calcium salts of the acid, a buffered product, and other forms. The dosage for all of these must be adjusted to the dose of the acid. In other words, 15 gm. of sodium PAS is the equivalent to 12 gm. of acid PAS. Many patients will have less gastrointestinal intolerance on some one of these products than on others. There is some difference in blood levels produced with these drugs. Sodium and potassium PAS being rapidly absorbed have rapid peaking and falling off of blood levels, while with other forms a more prolonged peak may be attained. The clinical significance of this is undetermined at the present time.

PAS preparations of all types if stored too long or exposed to undue heat, light or moisture, deteriorate and discolor, resulting in increased intolerance or actual toxicity. PAS should be prepared fresh if given in solution. Under best conditions, side reactions of anorexia, nausea and diarrhea are not uncommon with all forms of PAS, but are not necessarily indications for discontinuing the drug. Occasional patients develop more severe reactions with fever, rash and rarely with severe systemic reactions simulating infectious mononucleosis.

PAS alone is relatively not very effective as a treatment for tuberculosis and should always be used in combined therapy. It has been shown recently that PAS, when administered concurrently with INH, will enhance the level of free INH in the serum of patients who rapidly inactivate INH. In Europe intravenous PAS is being used extensively and claims have been made for its value by this route.

The standard dose of PAS in this country is 12 gm. daily in three divided doses, although some studies have indicated that smaller doses of the active substance may well be useful, particularly if full dosage is not tolerated.

*Viomycin* has a useful though rather limited place

in the treatment of the patient whose organisms are resistant to isoniazid and streptomycin and for whom an umbrella is desirable for resectional surgery. The usual dosage is 2 gm. (IM) twice weekly for two or three weeks before surgery and eight to ten weeks or more postoperatively. When feasible it should be combined with another drug to which the organisms are sensitive. Renal toxicity precludes the daily use of this drug, but is less evident when used twice weekly.

*Pyrazinamide (PZA)* is now undergoing clinical investigation by the Veterans Administration-Armed Forces group, the USPHS group, and others, particularly in combinations with isoniazid. It has been found to be effective in combination with INH when administered to patients who have never received either drug before. There is some evidence that this drug may be effective for short periods of 30 to 60 days when used alone, particularly to cover resectional surgery in patients resistant to the other major drugs. In most studies reported, there has been a significant factor of toxic effect on the liver; approximately 10 per cent of the patients receiving pyrazinamide have shown abnormal results in liver function studies and about 3 per cent have shown frank jaundice. When this drug is administered liver function studies should be done periodically to estimate any liver toxicity. Most of the toxic conditions resulting from the use of this drug, however, revert to normal when the drug is withdrawn. PZA should be discontinued promptly if significant disturbance in liver function is noted and invariably if jaundice appears. At the present time, due to severe toxicity of the drug, it should be administered only to patients in the hospital. This drug is ordinarily administered in dosage of from 30 to 40 mg. per kg., orally administering no more than 3 gm. daily. Hyperuricemia has been reported in conjunction with the use of PZA.

*Cycloserine* is a relatively new antibiotic under investigation for use in the treatment of tuberculosis. Preliminary studies have shown that this drug used alone is not as effective in the treatment of tuberculosis as are the various combined drug regimens now in use. At present, studies are in progress to determine the effectiveness of this drug when used in combinations with INH. Reports of toxicity, particularly to the nervous system, have continued such as tremors, drowsiness, convulsions and psychoses. Most investigators originally used this drug in dosage of 1 gm. daily, orally, in divided doses. Newer studies indicate a maintenance of therapeutic effectiveness and nearly complete absence of toxicity when administered in doses of 0.25 gm. twice daily in combination with isoniazid.

*Recommended Regimens:* Though there is no generally accepted optimum chemotherapy regimen for



pulmonary tuberculosis at the present time recent reports of the Veterans Administration-Armed Forces group and of U. S. Public Health Service sponsored studies indicate that the following regimens give approximately the same clinical results in most cases of tuberculosis: (1) Isoniazid, 300 mg. daily plus PAS 12 gm. daily; (2) Isoniazid 300 mg. daily plus SM 1 gm. twice weekly, and (3) Isoniazid 300 mg. daily plus SM 1 gm. twice weekly plus PAS 12 gm. daily. The Veterans Administration and U. S. Public Health Service studies indicate that the regimen of streptomycin 1 gm. twice weekly and PAS 12 gm. daily is not quite the equal of the other three regimens, and that in far advanced disease with large cavities INH-PAS is superior to intermittent SM-INH.

As has been pointed out above, there is increasing evidence that the drug regimens must be individualized in certain patients, particularly in those with more advanced disease, with larger doses of INH and daily SM being administered as indicated.

### ***Acute Miliary Tuberculosis***

Isoniazid has proved to be very effective in the treatment of miliary tuberculosis with survival rates of 90 per cent and higher being reported. Any standard INH containing combined regimen should be adequate in treating this condition, but due to the serious nature of miliary tuberculosis many still advocate the use of triple drug therapy with higher dosages of isoniazid such as 10 mg. per kg. per day being used. The drug therapy should be continued for at least 18 months.

### ***Tuberculous Meningitis***

Reports during the past several years indicate that survival rates of 80 per cent to 90 per cent or higher are possible in tuberculous meningitis when INH, SM and PAS are administered for a minimum of 24 months. The Committee suggests a dosage schedule similar to that for miliary tuberculosis. Intrathecal medication is not recommended. It is of the utmost importance to start the treatment immediately if the history, physical examination or spinal fluid findings strongly suggest a diagnosis of tuberculous meningitis. If the patient's condition does not permit oral medication, the INH and PAS may be given parenterally, initially.

### ***Genitourinary Tuberculosis***

Genitourinary tuberculosis responds very well to combined drug therapy including INH, SM and PAS in dosage as recommended for pulmonary tuberculosis. The drug should be administered for 18 to 24 months. Recent reports from the Veterans Ad-

ministration-Armed Forces study indicate that long-term therapy with INH, SM and PAS is very often definitive in such cases and the need for surgical intervention is becoming surprisingly less frequent.

### ***Tuberculosis in Childhood***

The Committee recommends that all children with active primary tuberculosis should receive antimicrobial therapy. The complications such as miliary and meningeal tuberculosis which sometimes occur in primary disease have sharply declined since the advent and use of INH. Consideration should be given to the treatment of recent tuberculous converters, particularly in children under four years of age. In children with active tuberculosis, the physician should always be on the alert for the development of miliary or meningeal tuberculosis. The approximate dosages of the antituberculosis drugs for children are as follows: SM 30 to 40 mg./kg. twice weekly, INH 10 to 16 mg./kg./day and PAS 200 mg./kg./day. Children tolerate higher dosages of INH well and administration of pyridoxin is usually not needed to prevent toxicity.

### ***Other Forms of Tuberculosis***

When the disease involves such organs and tissues as the larynx, mouth, lymph nodes, trachea, bronchi, GI tract and bone it is best treated by long term combined chemotherapy using one of the regimens recommended for pulmonary tuberculosis.

### ***Tuberculous Pleurisy with Effusion***

This condition should be treated as a case of acute pulmonary tuberculosis with long term continuous combined chemotherapy for a year or more. This recommendation also applies to the so-called idiopathic pleurisy with effusion patients with a positive Mantoux even though careful studies fail to reveal presence of tubercle bacilli in the pleural fluid. Experience has shown that in such cases the etiology is usually tuberculous and should be treated as such in order to avoid reactivation later.

### ***Steroid Therapy in Tuberculosis***

The exact role of cortisone and related compounds in the management of infectious diseases is undefined. However, the greatest difference of opinion regarding the place of steroids exists in the field of tuberculosis. Some have felt that this form of therapy is always contraindicated while others have recommended its use under certain specific circumstances. Some of the tissue damage and clinical manifestations in tuberculosis are due to an exaggerated interaction between sensitized tissue and tuberculoprotein. Corticosteroids may suppress this overactive defense mech-

*(Continued on Page 31)*



Did you ever wonder how "adopted parents" feel toward their children, or whether they feel any different than "natural parents"? The author of a little poem entitled "Our Baby," again an unknown individual, has beautifully expressed the attitude of parents who have taken into their homes children in less fortunate circumstances.

*Some day I'll have to tell you, dear,  
by birth you're not my own . . .  
Or else some meddler will impart the  
knowledge which is known,  
That we adopted you, to start a home  
for us alone.*

*I'll try to make it plain to you and  
pray you've understood,  
Our friends all had a child or two,  
their lives seemed full and good,  
So . . . there was nothing left to do,  
but find you if we could.*

*You see, God did not hear my prayer  
and let me bear a child,  
My heart was sick with longing,  
dear, until the day you smiled,  
And snuggled close within my arms  
—then you became my child.*

*It hurts my heart when people say,  
"She's really not your own" . . .  
They cannot ever guess the love for  
you that fills our home,  
You were not born to me, that's true  
. . . but birth's so small a part,  
Of Motherhood . . . and daily tasks . . .  
which fill a mother's heart.*

*It's we who've known the agony of  
terror stricken night . . .  
And prayed, "Oh, cool her fever, God,  
and please make her all right."  
It's we alone who knew the joy of  
teaching you to walk . . .  
We've picked you up and kissed you lots  
and thrilled when first you talked.*

*No natural parents have a voice in  
choosing what they get . . .  
A boy . . . a girl, there's no choice  
of blonde or dark brunette.  
So, I hope you'll be happy, dear, and  
have no vain regrets . . . for . . .  
From all the babies in this world I  
sought you for my own . . .  
Yes, you're mother's "Chosen Child"  
. . . my child . . . and mine alone.*

When asked to tell a group of schoolgirls in the slums of one of our large cities how to be happy, Alice Freeman Palmer, one of the earlier presidents of Wellesley College, told them: "I will give you my three rules for being happy, but mind, you must all promise to keep them for a week, and not skip a single day, for they won't work if you skip one single day. The first is that you will commit something to memory every day, something good. It needn't be much—three or four words will do—just a pretty little poem or a Bible verse. The second rule is, look for something pretty every day and don't skip a day or it won't work—a leaf, a flower, a cloud—you can all find something. My third rule is—now mind, don't skip a day—do something for somebody every day."

\* \* \*

We all have our ideas of what friendship is, but some unknown individual summed it all up in this paragraph. "Friendship is a plant which requires careful cultivation. If it is well cared for it may grow to be a real century plant, blooming and bearing fruit through generations. To attain perfection it must be watered with the tears of sympathy, invigorated with the sunshine of happiness shared, protected from the parasites of envy and selfishness, and the weeds of distrust and discord must be eliminated. It should be sheltered from the frost of indifference and criticism, and it must be hedged about with a fence of trust and devotion."

\* \* \*

*God hath not promised  
Skies always blue  
Flower strewn pathways  
All our lives through,  
God hath not promised  
Sun without rain  
Joy without sorrow  
Peace without pain.*

*But God hath promised  
Strength for the day,  
Rest from labor,  
Light for the way,  
Grace for the trials,  
Help from above,  
Unfading sympathy,  
Undying Love.*

\* \* \*

May the New Year 1958 bring to each of you a full measure of the really worthwhile things of life.—O.R.C.



## PRESIDENT'S PAGE

DEAR DOCTOR:

Your president, I fear, has disturbed our medical colleagues of the "effete East."

It was in Philadelphia at the recent A.M.A. meeting during discussions in the Reference Committee on the pending legal action of the United Mine Workers against the Colorado Medical Society. Organized medicine in Colorado wants to bar its members from cooperating in the U.M.W. closed panels for medical care of the miners and their families. Apparently such boycotting of doctors is acceptable to the profession.

Not acceptable, however, was the shocking suggestion of the discussant from Kansas, who opined that such situations should be resolved at the very start of negotiations by requiring the unions to deal with medical society representatives in preparing their medical plans. That they should not be permitted to dicker with single doctors, who, for one reason or another, can be maneuvered into a form of medical practice which is counter to accepted principles of proper patient-doctor relationships, and counter to approved modes of furnishing medical service.

This, said our confreres from eastern states, would be beneath the dignity of the medical profession, would be stooping to trade union levels, would be nothing more or less than collective bargaining. So what? Is there valid objection to collective action to preserve what we sincerely regard as inviolable principles; to preserve the free, unshackled accomplishment of the mission to which we are dedicated as physicians?

Our friend, the governor, has likened us to the teamsters' union. He seems to exhibit a measure of respectful regard for a "tight" organization. As he should. And so should the unions or any other organization dealing with medicine.

It is submitted that there should be in each state medical society, as well as in our national association, a body of men, representative, competent, carefully selected men, to act as a committee; or possibly they should be referred to as a commission. Their function: to serve as the negotiating representatives of organized medicine through whom, and only through whom, could be negotiated the preparation of any and all plans for group medical care.

This, in all probability, the unions would not approve. Unquestionably they realize that on the "divide and conquer" principle they would have little difficulty finding an ample number of individual doctors willing to compromise the principles we have established and supported. But logically, of course, any stand opposing collective action is completely untenable to an organization whose entire purpose in being is just that.

Certain legal points must be considered. (The A.M.A. once was haled into court for "restraint of trade.") These points should not be insurmountable and should be susceptible to solution by the astute attorneys in the A.M.A. Legal Department.

It is only a matter of time until this situation will arise in Kansas. The more one thinks of the above proposal, the more practical and logical it seems to become.

Let's give it serious consideration. Maybe something will come of it.

*Fraternally yours,*

A handwritten signature in cursive script, reading "Danette A. Nelson". The signature is fluid and elegant, with a large initial "D" and a stylized "N".

*President*

## EDITORIAL COMMENT

### Best Jokes of 1957

The past year probably was much like any other with its share of success and of failure. There was a little humor also if you will order it slightly rare.

There was the Russian trick of floating a dog in a satellite, which became funny when the United States blew trumpets and announced it was our turn. We should have had Dizzy Dean pitching that day.

There was a repeat performance of the melodrama entitled "Who's Got the Vaccine?" which was played a few years ago by a slightly different cast. Uncle Sam retained the lead of course because as its angel he could control the production.

This too had its lighter side. As long as "tickets" were scarce, everybody wanted them. Outrageous scalping activities even got into the paper. Then when news got around that the shortage was over, you couldn't give them away.

Kansas passed a Basic Science Act and got a composite Healing Arts Board and examined osteopaths in medicine and surgery. If there is any real humor in this event, it has been shown so far only by a couple of newspaper editors and by a very few other persons, such as the legislator who said if he had known the Basic Science Act would prevent anyone from practicing in this state he would have voted against it.

This little comedy gets better in a subsequent act where 200 big town doctors suddenly become available for 200 western Kansas communities—except for their reluctance to face the Basic Science Board in this state.

During 1957 at least, these doctors do not appear in the play. So far the speaking parts are confined to a monologue on the part of an editor. He was abetted by some political pantomiming but by and large the whole business was not very well staged.

Not that these problems aren't serious. They are. The standards of health care, the problems of physician distribution are great, and they are important. Their solution requires the cooperative effort of many persons in many fields of endeavor.

They are being solved in many places of Kansas where the people and the medical profession, and yes, the newspaper editor have all combined their efforts. The Kansas Medical Society takes great pride in its contributions toward supplying Kansas with the finest health care available anywhere and can produce evidence to support the outstanding position Kansas enjoys in this regard.

The comedy arises, if you like that type of humor, where one little man decides he will solve the prob-

lem all by himself. And last year gave us a couple of examples like that.

### Group Life Insurance

The American United Life Insurance Company of Indianapolis will open enrollment for group life insurance for all members of the Kansas Medical Society under the age of 70 years on February 1 and will continue an open enrollment for 60 days thereafter.

Insurance for every physician who signed an application (all under 70 years of age) will become effective on February 1 without the necessity of establishing physical insurability. After the 60-day period, enrollment will be limited to those who can physically qualify, except for new members of the Society who will have a six-months enrollment eligibility.

The Kansas Medical Society is pleased to announce that the plan for making group life insurance available to its members has finally succeeded. This has been studied for years by the Committee on Medical Economics and has been endorsed by the House of Delegates. There has just now been sufficient interest to place the plan into effect.

In the briefest analysis the Kansas group life program is term insurance from purchase date to age 70. The premium is \$100 a year. The face value is highest at earlier ages and decreases annually. It may be converted to other forms of insurance without proof of insurability.

The Kansas Medical Society believes this to be a benefit to its members and of especial value to young physicians. It is strongly urged that each doctor examine this program. More information may be obtained from the Kansas Medical Society, 315 West Fourth Street, Topeka, Kansas.

### H.R. 9467

During the first session of the 85th Congress Mr. Forand, a Democrat of Rhode Island, introduced into the House of Representatives H.R. 9467. This contains Social Security amendments which will vitally affect a great many persons. A complete analysis of the 40-page bill would be longer than is justified in this space. The following is for the purpose of advising the Kansas Medical Society of a particularly significant legislative action that is currently before the Congress of the United States.

Should this bill pass, Social Security taxes will be paid on income up to \$6,000 each year, and by 1974 will raise to 7½ per cent the tax for the self-employed and to 4¾ per cent the tax to be paid by the employer and by the employee, making a total of 9½ per cent for wage earners.

Under the benefits, it offers 60 days of hospitalization in any 12-month period, plus surgical benefits, and an additional 60 days of nursing home care to all Social Security beneficiaries 65 years of age and older and the same benefits to their survivors and dependents.

The bill says any individual may "freely select the surgeon of his choice, provided that the surgeon is certified by the American Board of Surgery or is a member of the American College of Surgeons except that such certification shall not be required in cases of emergency where the life of the patient would be endangered by any delay, or in such other cases where such certification is not practicable, and except that, in the case of oral surgery, such individual may select a duly licensed dentist."

The bill also says that the Secretary of Health, Education, and Welfare may enter into agreements with individual physicians on the basis of contracts and fee schedules or with an association. He may also make contracts with voluntary non-profit insurance companies.

In brief, this represents socialized medicine for a very large number of Americans. Dr. David E. Allman, president of the American Medical Association, made the following official comment on this proposed legislation and asks all doctors to cooperate in preserving free enterprise in the practice of medicine:

"This proposal is clearly 'socialized medicine' for a segment of the American people. Enactment would permit the federal government to withdraw social security taxes on a compulsory basis from almost the entire working population and use those taxes to reimburse hospitals and physicians for services rendered to all persons eligible to receive old age and survivors benefits. The American Medical Association has repeatedly opposed compulsory health insurance and is unequivocally opposed to this new version."

### Test Your Tax I. Q.

*Editor's Note. The following series of questions was prepared by the American Institute of Certified Public Accountants in cooperation with the Internal Revenue Service as a method of testing knowledge on the federal income tax law. Answers to the questions will be found on Page 25.*

1. During the past year you spent approximately \$1,000 for built-in bookcases and wall-to-wall carpeting for your office. Since your lease has only four years to run, you may . . .

- (a) Deduct the \$1,000 on your 1957 tax return
- (b) Amortize the cost over the next four years

(c) Depreciate it over the life of the furnishings

2. When you were transferred to another city, your company gave you a sum of money toward the cost of moving you and your family. For tax purposes you should consider this money as . . .

- (a) A gift that is not taxable
- (b) Income that is subject to tax with a deduction for only your personal moving expenses
- (c) Income that is subject to tax with a deduction for the cost of moving your entire family

3. You have invested in several blue-chip stocks. The dividends received from this investment are exempt up to . . .

- (a) \$50 whether you or your wife owns the stock
- (b) \$100 if the stock is held jointly by you and your wife
- (c) \$100 regardless of who owns the stock, providing you file a joint return with your wife

4. You are *not* permitted to deduct as contributions your donations to which of the following organizations . . .

- (a) Charitable societies
- (b) Educational institutions
- (c) Political parties

5. Your daughter, who was hospitalized for several weeks in the earlier part of 1957, was married in November. If she files a joint return with her husband, you may . . .

- (a) Not claim her as a dependent but you may deduct her medical expenses
- (b) Claim her as a dependent and deduct her medical expenses
- (c) Not claim her as a dependent and you may not deduct her medical expenses

6. You filled very few inside straights during the past few months and lost approximately \$300 to the members of your Thursday night poker club. You should . . .

- (a) Deduct the loss in computing adjusted gross income
- (b) Subtract the loss from adjusted gross income
- (c) Give up poker and start watching television on Thursday nights

7. Last October your car skidded on a wet road and grazed a telephone pole. The damage was not covered by insurance and it cost you \$100 to have the car repaired. To claim a casualty deduction . . .

- (a) You must have the damage repaired within 30 days of the accident



- (b) You may simply deduct the amount of the repair bill
- (c) You must prove that you were using the car in your work at the time of the accident

8. Which of the following may you *not* consider as a deductible business expense . . .

- (a) A subscription to (insert the name of your trade publication)
- (b) Commutation fees
- (c) Costs of attending the (insert the name of a trade) convention

9. While playing hide-and-seek in your backyard, the neighbor's children trampled and killed several of your more expensive bushes. The cost of replacing this shrubbery . . .

- (a) May be deducted if it does not exceed the original cost of the bushes
- (b) May be deducted only if the parents of the children refuse to pay damages
- (c) May not be deducted under any circumstances

10. Your 16-year-old son works during the summer for you in your unincorporated business, and you pay him a weekly salary. Since he is a full-time employee, he is . . .

- (a) Required to pay social security
- (b) Not subject to social security
- (c) Permitted to decide whether he does or does not want social security coverage

11. Last year you gave your church a small piece of property for which you had paid \$500 some time ago. Its value at the time of the gift was \$1,500. As a result . . .

- (a) You may claim a tax deduction of \$1,500
- (b) You must pay a capital gains tax on the \$1,000 increase
- (c) You may claim a tax deduction of \$500

12. There were a few leaks in the shingle roof of your office building; so you constructed a new tile roof. You should . . .

- (a) Consider this as a repair bill and deduct the entire amount as a business expense on your 1957 return
- (b) Regard this as a capital improvement and depreciate the cost over a period of years
- (c) Add the cost of the repair to the value of the property

13. After you have filed your personal 1957 tax return, the Government is allowed to check your return and bill you for additional tax. The period of time in which this may be done ends . . .

- (a) On the day you file your 1958 return
- (b) Two years after you file your 1957 return
- (c) Three years from the due date of your 1957 return

14. On the advice of a friend, you engage a CPA to prepare your 1957 tax return. The fee he charges for this service is . . .

- (a) Not deductible since it is a personal expense
- (b) Not deductible if you are entitled to a refund
- (c) Deductible in full

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### Mid-West Cancer Conference

The 10th annual Mid-West Cancer Conference will be held at the Hotel Broadview, Wichita, March 13 and 14, 1958, according to an announcement made recently by the American Cancer Society, Kansas Division. The Medical and Scientific Committee, with Dr. D. Cramer Reed of Wichita as chairman, has been hard at work on the program for a full year and promises a session that will be interesting and helpful to all Kansas physicians.

The complete program will be announced as soon as possible. A partial list of speakers and their subjects follows:

Dr. Arthur Upton, research pathologist, Oak Ridge National Laboratory, "The Role of Hormonal Factors in the Pathogenesis of Leukemia" and "Hazards of Ionizing Radiation of Practical Concern to Physicians."

Dr. J. A. del Regato, director, Penrose Cancer Hospital, Colorado Springs, "The Treatment of Hodgkin's Disease, Lymphosarcoma, and Leukemia."

Dr. George Moore, director, Roswell Park Memorial Institute, Buffalo, "The Use of Anti-Cancer Agents in Conjunction with Surgery," and "The Treatment of Advanced Breast Carcinoma with TSPA."

Dr. George Crile, Department of Surgery, Cleveland Clinic, "The Role of Endocrine Glands in the Production and Treatment of Cancer."

Speakers for whom subjects have not been announced are: Dr. Joseph W. Beard, Duke University School of Medicine; Dr. Maxwell M. Wintrobe, University of Utah College of Medicine; Dr. G. Burroughs Mider, associate director in charge of research, National Cancer Institute, and Dr. David Karnofsky, Memorial Hospital, New York City.

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The motion picture library of the American Medical Association reports that more than 500 film shipments were made during the month of October, 1957. All were supplied to members of the medical profession.

## Maternal Death Study—Case History

*Editor's Note. This is the first of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas. The committee also records its decisions as to the most probable cause of death, the preventability or unpreventability of the death, and the major contributing factors.*

The patient was a 33-year-old multipara who died in a moderately large, fairly well equipped hospital with a certificate diagnosis of rupture of the uterus. A stillborn male child of term size was delivered by laparotomy prior to death of the mother. No autopsy was performed and the case was not discussed by the hospital staff.

Medical history revealed no significant illnesses, and previous deliveries were normal. This pregnancy was apparently normal for the first five months as the patient did not report for care until that time. Subsequent pre-natal records were minimal in character and pre-natal visits were irregular. A complete blood count was performed at the first visit but typing was not done at that time. Diet was thought to be excellent.

The latter weeks of pregnancy were apparently attended by considerable subjective discomfort for the patient. The physician's position was complicated by a close personal friendship with the patient and her husband. He was prevailed upon to attempt induction of labor about two weeks prior to the estimated date of confinement. Quinine and castor oil were used unsuccessfully. Two weeks later, as the result of further insistence, a second induction was initiated.

The patient was admitted to the hospital at noon the day before her expected date. On admission, temperature, pulse, and respiration were normal. Examination revealed the fetus in cephalic presentation with the head floating. The cervix was closed, and there was only slight if any effacement. The fetus was thought to be of mature size, and heart tones were good at 136. There were no contractions. Blood pressure was 108/70.

One ampule of pitocin in one liter of 5 per cent dextrose in water was started intravenously and given at varying rates, a total of ten hours being required for completion. Contractions varied in intensity and rate but at the end of the administration, the cervix was not effaced and the dilatation was two centimeters. One and one-half hours after the fluids were terminated, contractions continuing, the patient had a generalized convulsive seizure immediately followed by severe shock, and she did not regain consciousness again. One and one-half hours after the convulsion, blood was started. One hour later, following obstetrical consultation, laparotomy was performed and the uterus was found to be ruptured, the dead baby being free in the abdomen. Oxygen was administered, transfusions were continued, further consultations were obtained, but the patient did not respond and expired about four hours later.

### Committee Action

Following presentation of the case by the physician carrying out the study, discussion by the Committee on Maternal Welfare emphasized the fact that attempted induction of labor, with a potent oxytocic in the presence of an unripe cervix without obstetric indication violated a basic principle of obstetric management. The delay in diagnosis and institution of therapy for shock and the delay in accomplishing the laparotomy were considered to be major factors in the fatal outcome.

CLASSIFICATION: DIRECT OBSTETRIC DEATH; PREVENTABLE; ERROR OF ATTENDING PHYSICIAN.

# Clinicopathological Conference

## *Jaundice, Paronychia, and Generalized Purulent Skin Lesions*

### Case Presentation

The patient for discussion today was a 25-month-old Negro boy who was first admitted to this hospital on March 7, 1956, with the complaint of "liver trouble" of two months' duration.

He had apparently been well until December, 1955, when his fingernails began to split and fall off, and pruritic, scabbing, purulent lesions developed on his scalp. These lesions gradually spread over the rest of his body. In January, 1956, he became extremely lethargic, his sclerae became noticeably yellow, his urine was dark, and he had eight to ten light yellow, watery or cheesy stools daily.

The family lived in a neighborhood with outside toilets which were frequently infested with rats. They used city water and dairy milk. In June, 1955, he had gone to Texas to visit cousins who had lesions on their scalps which were said to be similar to those which the patient had developed. He had had no contact with jaundiced persons.

The boy was well developed but poorly nourished, weighing only 8.9 Kg. (19½ pounds). He was alert, irritable, and obviously jaundiced. There were numerous crusted lesions on the scalp, axillae and groins, and a brown punctate rash on the arms, legs and soles of his feet. Crusting, exfoliating lesions had almost destroyed his fingernails, and there were several large paronychial vesicles which were filled with a purulent material. The sclerae were icteric. The pupils were round and equal and reacted to light. The ear canals were filled with a purulent exudate and bloody crusts, and both pinnae were covered with vesicles and pustules. The lips were cracked and bleeding; the tongue was moist, and the gums were dark and bled easily. Numerous pinpoint gray-brown spots were noted inside the upper lip, and the oral mucosa was icteric. The lung fields were clear, and the heart tones were normal. The liver was palpable 5 cm. below the right costal margin; the spleen, 2 cm. below the left costal margin. No other organs or masses were palpated.

On admission the red count was 5,600,000 with 2.6 per cent reticulocytes and 6.5 gm. of hemoglobin.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of medical students.

There was anisocytosis, hypochromia, and microcytosis. The white count was 12,000 with 73 per cent polymorphonuclears, 19 per cent lymphocytes, and 1 per cent eosinophiles. The urine was positive for bile and negative for cytomegalic inclusion bodies. The VDRL was non-reactive. The heterophile titer was 1:14. Leptospira studies, febrile agglutinins, and blood smears for malarial parasites were all negative. The blood sugar was 83 mg. per cent; urea nitrogen, 10.5 mg. per cent; sodium, 138 mEq/L; potassium, 5.0 mEq; carbon dioxide, 24 mEq; chlorides, 108 mEq. The total serum bilirubin was 10.2 mg. per cent with 6.6 mg. per cent direct bilirubin. The alkaline phosphatase was 31.3 millimol units; cephalin cholesterol, negative; thymol turbidity, 21 units; serum albumin, 4.6 gm. per cent; globulin, 2.4 gm. per cent; and the serum cholesterol was 412 mg. per cent with 28 per cent esters. The stools were negative for ova and parasites. Cultures of the nose and throat grew out pneumococci, hemolytic streptococci and Pseudomonas. Cultures from the axillae yielded Proteus and a moderate growth of Candida albicans. Three blood cultures were negative at ten days. The prothrombin time was less than 10 per cent of normal. The glucose tolerance curve was flat. Serum electrophoresis showed a relative decrease in albumin and normal gamma globulin. A sickle cell preparation and Coomb's test as well as tuberculin and histoplasmin skin tests gave negative results. The serum iron was 76.5 gamma per cent, and the serum transaminase was 84.6 GOT units. The lupus erythematosus cell preparation was negative.

The infant was treated with bacitracin ointment, erythromycin by mouth, and parenteral menadione sodium bisulfite (Hykinone). He was given a high protein, high calorie diet, but he did not improve. A liver biopsy was done, and the extrahepatic ducts were explored and found to be normal. When ascites developed, cortisone was added to his regimen, but it was gradually discontinued. During most of this hospital stay he was afebrile, with only an occasional elevation in temperature to 103 degrees. He was discharged on June 9, 1956, unimproved, but weighing 13 Kg. (28½ pounds).

On July 29, 1956, he was readmitted with anorexia, fatigue, and loss of weight. His physical findings were essentially the same as on the previous admission. He weighed 11 Kg. (24 pounds), was marked-



ly jaundiced, and the skin lesions were more severe. Laboratory findings at this time showed albuminuria, but were otherwise unchanged.

He was started on a cholesterol-free diet, bacitracin ointment, and vitamins, iron, and erythromycin by mouth. He was discharged on August 4, 1956, and followed afterward in the outpatient clinic, where he was treated with permanganate soaks, gentian violet, sodium liothyronine (Cytomel), triple sulfonamides, and oxytetracycline hydrochloride by mouth.

He did not return to the clinic after August, but on December 6, 1956, he was brought to the emergency room, bleeding from the nose, mouth and bowels, and having vomited blood. He was readmitted to the hospital at that time.

He was extremely jaundiced, poorly nourished, alert and apprehensive. His skin was covered with dried pustular lesions, and the tips of the fingers and toes were swollen and bloody with split and missing nails. The skin of the axillae and groins was excoriated. The findings in the abdomen were unchanged.

The white count was 53,000 with 71 per cent polymorphonuclears, 29 per cent lymphocytes, and 1 per cent monocytes. The hemoglobin was 2.6 gm. The platelet count was 730,000. The serum albumin was 2.66 mg. per cent; globulin, 1.44 mg. per cent. The prothrombin time was over five minutes.

The child's condition became progressively worse, and shortly after admission he suddenly died during an attempt to insert an intravenous cannula.

Dr. Mahlon Delp (moderator): Are there any questions for Dr. Cherry?

Alfred Scherer (fourth year medical student):\* Did he have any bleeding before his first admission?

Dr. Arthur Cherry (resident in pediatrics): No, he did not.

Mr. Scherer: Was there a family history of jaundice?

Dr. Cherry: Not that we could determine.

Warren E. Roberts (fourth year medical student): Had this child ever received intravenous or intramuscular medications before his first admission?

Dr. Cherry: He had received only oral and local medications.

Erich Ryll (fourth year medical student): Had he been exposed to any toxins?

Dr. Cherry: He may have been given a mixture of turpentine and water, but there is no definite record of this.

Charles L. Schroff (fourth year medical student): What were the serum iron and transaminase values?

Dr. Cherry: Only the one transaminase was done;

a second serum iron level was 75.1 gamma per cent.

Mr. Ryll: Were any other serum cholesterol values obtained?

Dr. Delp: One was 660 mg. per cent; another, 700 mg. per cent; and a third, 1120 mg. per cent.

Mr. Scherer: Was he on a milk diet before his first admission?

Dr. Cherry: He was breast fed until he was nine months old; then he was given table foods. He refused homogenized milk, and he was given no vitamins. He seemed to have been allergic to orange juice, and it is recorded elsewhere that he had been fed mostly eggs and toast during his early months.

Mr. Searle: Was the glucose tolerance curve high or low?

Dr. Cherry: The fasting value was 90 mg. per cent, and the others were 96 mg. per cent, 92 mg. per cent, and 96 mg. per cent. There was no sugar in any of the urine specimens.

Mr. Scherer: What was the platelet count?

Dr. Cherry: The platelet count was 667,000 on the first admission.

Mr. Schroff: What was the prothrombin response from the vitamin K he received on his first admission?

Dr. Cherry: The first two prothrombin times were less than 10 per cent of normal. On April 4 it was 82 per cent of normal, and on May 28 it was 83 per cent of normal.

Mr. Scherer: What was his temperature on admission?

Dr. Cherry: It was normal.

Mr. Searle: I assume a T-tube was used after the biliary exploration; was there any drainage?

Dr. Cherry: There was drainage of yellow fluid.

Dr. Delp: How long was the T-tube left in?

Dr. Cherry: Only a short time.

Mr. Scherer: What did the urinalysis show besides the albuminuria on the second admission?

Dr. Cherry: The voided specimen was neutral with a specific gravity of 1.002. There was a heavy trace of albumin, but no sugar. There were rare white blood cells per low power field, some mucous and positive bile.

Mr. Ryll: What were the results of the skin and fingernail cultures?

Dr. Cherry: The skin and fingernail cultures showed nonhemolytic staphylococcus aureus, Pseudomonas, Candida albicans, and Proteus.

Mr. Searle: What were the alkaline phosphatase, cephalin cholesterol, and thymol turbidity values on the first admission?

Dr. Cherry: The alkaline phosphatase was 31 units, initially, and the next determination was 50 units. The cephalin cholesterol was 1 plus, and the thymol turbidity was 37 units. The next hepatogram showed

\* Though a medical student in March, 1957, when this conference occurred, he, like the others referred to as students, received the M.D. degree in June, 1957.



an alkaline phosphatase of 66 units; the cephalin cholesterol was negative, and the thymol turbidity was 24 units. A repeat test was similar.

Mr. Ryll: Was the mother subject to fever blisters?

Dr. Cherry: I do not know.

Mr. Searle: Will you describe the liver on the third admission?

Dr. Cherry: It was palpable three centimeters below the right costal margin, and it was firm but not tender.

Mr. Schroff: Did the itching begin before the skin lesions were noted? And when did the mother first notice that the urine was dark?

Dr. Cherry: The skin lesions were noted before the itching began. The urine was first noticed to be dark yellow in January, 1956, before the mother first saw a physician.

Dr. Delp: May we see the electrocardiogram, please?

Mr. Roberts: This tracing was taken in May, 1956 (Figure 1). There is a normal sinus rhythm, and the rate is 130. I interpret this as a normal tracing with a sinus tachycardia.

Dr. Delp: Now may we have the x-rays, please?

Mr. Scherer: The cholangiogram taken on April 20, 1956 (Figure 2), shows the T-tube in place. The gallbladder fills well, and the dye is seen in the small intestine. I do not see any dye in the hepatic radicles.

The admission chest film shows no bony abnormalities; the lung fields are clear; and the heart is of normal size for this age. The liver is enlarged, and the shadow of the spleen is visible. There is diffuse haziness over the abdomen suggesting ascites. I cannot see the psoas shadows. The bowel pattern seems normal.

The films of the skull taken on the first admission



Figure 2. Cholangiogram taken on April 20, 1956.

show no punched-out areas or abnormal calcifications. The sella is not enlarged. There are no bony abnormalities. I interpret these as normal skull films.

Dr. Delp: Dr. Youngstrom, do you have any comments?

Dr. Karl Youngstrom (radiologist): In the cholangiogram the hepatic radicles did not fill as well as they should.

Dr. Delp: Mr. Schroff, may we have your differential diagnosis and cause of death, please?

### Differential Diagnosis

Mr. Schroff: The case for discussion today is that of a 25-month-old Negro boy who was apparently well until three months before admission, when he developed pruritic skin and nail lesions. In January, 1956, his eyes were yellow, his urine was dark, and he began to have numerous light yellow, watery or cheesy stools.

He was a well developed, poorly nourished, jaundiced child with widespread purulent skin and nail lesions. He had hepatomegaly and splenomegaly. Laboratory tests showed a mild leukocytosis, hypochromic anemia, and markedly abnormal liver-function studies which indicated both biliary obstruction and parenchymal cell damage. He was treated with antibiotics and diet, but, except for a good response to vitamin K therapy, he did not improve. His extrahepatic ducts

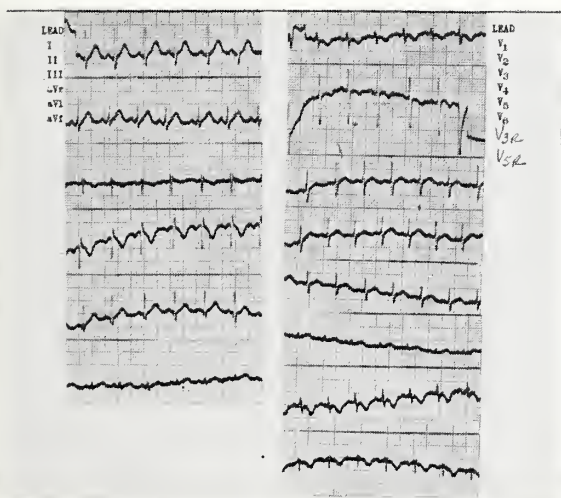


Figure 1. Electrocardiogram taken in May, 1956.

were explored and found to be normal. We do not know what the liver biopsy showed. The child developed ascites and fever and was not improved at the time of discharge. When he was seen four months later his condition had deteriorated noticeably, and he was treated with antibiotics, iron, and diet. He was again discharged to be followed as an outpatient.

The last admission was in December, 1956, approximately one year after the onset of his illness. He was bleeding from the nose and gastrointestinal tract. His condition had further deteriorated, and he had severe anemia, leukocytosis, hypoproteinemia, and a prolonged prothrombin time. He died shortly after admission.

I shall base my discussion on the causes of jaundice in infancy. These can be grouped under two main headings: obstructive and non-obstructive. In this case the xanthomata, pruritus, high direct bilirubin, high alkaline phosphatase and high serum cholesterol are suggestive of obstructive-type jaundice. The length of the clinical course is against this, and the hepatomegaly, elevated serum iron, and transaminase suggest hepatocellular damage. Furthermore, we know the extrahepatic ducts were found to be normal. Intrahepatic atresia is ruled out because of the length of the clinical course and the drainage of bile from the T-tube; but intrahepatic obstruction, caused by some type of cirrhosis, is not so easily eliminated.

Of the non-obstructive causes, I will consider hemolysis and parenchymal cell destruction. Our patient may have been hemolyzing, but there was no spherocytosis, and a sickle cell preparation was negative. A primary hemolytic process alone cannot account for the clinical and laboratory findings in this case. There are many causes of liver cell destruction such as toxins, pyrogens, parasites, spirochetes, and fungi. None of these seem to warrant serious consideration except, perhaps, syphilis, leptospirosis, and amebiasis, and these can be ruled out by the negative blood and stool studies.

I shall now consider viral agents which cause jaundice. Cytomegalic inclusion disease is usually seen in the neonatal period. In older infants it is frequently associated with pneumonitis and enterocolitis. In the absence of these findings and in the absence of inclusion bodies in the urine sediment, I shall rule out this disease. Infectious mononucleosis may cause jaundice, but this is usually a mild disease associated with posterior auricular lymphadenopathy and a high heterophile titer. I think we can eliminate it as a possible diagnosis.

Finally, I shall consider viral hepatitis. I shall make no attempt to determine the etiology because infectious hepatitis and homologous serum hepatitis cannot be differentiated clinically. It has long been considered that viral hepatitis in children is a mild

disease, but it has been found that hepatitis can occur in three general syndromes: the largest group follow a relatively benign course; a few develop fulminant hepatitis in which death occurs within ten days; and a third group has a progressive hepatitis. The last type of disease is believed to be an unrelenting process which is usually accompanied by portal hypertension and results in death within two to nine months. There are numerous reports in the literature of progressive hepatitis in children simulating biliary atresia. Clinically, there are many pictures of obstructive jaundice with acholic stools, and, were it not for the elevated serum iron and transaminase tests now being recorded, hepatitis might not even be suspected.

The onset is usually in the neonatal period, but it may occur later. The child is active and alert, has a low-grade fever, and generalized lymphadenopathy. The liver and spleen are both enlarged. The serum bilirubin is elevated to about 10 mg. per cent, especially in the direct component. Urinary urobilinogen is usually absent, and fecal urobilinogen is absent or low. Thymol turbidity and cephalin cholesterol flocculation may be normal or elevated. Alkaline phosphatase and total cholesterol are frequently elevated. An abdominal exploration and a liver biopsy are necessary for a definite diagnosis. The condition progresses to cirrhosis in a few weeks, and it may be difficult to distinguish from Laennec's cirrhosis or portal cirrhosis. It has been called a variety of names including Hanot's cirrhosis, primary biliary cirrhosis, and xanthomatous cirrhosis. It is probably best termed cholangiolitic biliary cirrhosis.

The clinical picture is one of progressive deterioration with persistent jaundice. Circulatory changes occur which result in portal hypertension, hepatomegaly, splenomegaly, ascites, and esophageal varices. Death results from liver failure and hemorrhage.

In summary, I believe this patient had progressive cholangiolitic hepatitis of viral etiology. He may have had an unrecognized active infection as early as December, 1955. The infection progressed so that, on the first admission, the liver function studies were indicative mainly of obstruction with minimal parenchymal damage. The low hemoglobin may have resulted from gastrointestinal bleeding or inadequate iron in his diet. He may have had mild portal hypertension, but I believe the low prothrombin time accounts for most of the bleeding.

He continued to have an active cholangiolitic hepatitis with progressive cirrhosis which eventuated in portal hypertension. His condition became worse, and he had liver failure and widespread sepsis at the time of death. His terminal event was probably shock resulting from gastrointestinal hemorrhage. I believe the pustular skin lesions were a pyoderma and related to his primary disease only because they were ag-



gravated by the pruritus (secondary to jaundice) and scratching. His nutritional status and general debilitation may have been the cause of the poor response of these lesions to therapy.

### Clinical Discussion

Dr. Delp: Thank you. What is your diagnosis, Mr. Scherer?

Mr. Scherer: Progressive cholangiolitic hepatitis.

Dr. Delp: Mr. Searle?

Mr. Searle: The same.

Dr. Delp: Mr. Scherer, what is your explanation of the skin lesions, especially those on the fingers and toes?

Mr. Scherer: They could have started as a mycotic infection of the fingernails.

Dr. Delp: Mr. Searle?

Mr. Searle: He may have had a fungal infection. I cannot rule out vitamin C deficiency, although this may not have played an important role.

Dr. Delp: Mr. Roberts, what is your explanation?

Mr. Roberts: I believe fungi were cultured.

Dr. Delp: There was only one time when a fungus was cultured, and that was from the axillae. Mr. Ryll, why did you ask whether the mother had fever blisters?

Mr. Ryll: Several cases have been reported in the literature of a herpetic infection involving the liver. It is believed that the infant acquires the disease from fever blisters on the maternal vulva. However, most of those cases terminate more quickly than ours did.

Dr. Delp: Mr. Searle, if we should accept the diagnosis of cholangiolitic hepatitis, why didn't this child recover? And why was this disease progressive?

Mr. Searle: I think he had progressive viral infections.

Dr. Delp: Do you believe that he had a viremia during the entire year?

Mr. Searle: No, because the virus was not found after the first two weeks.

Dr. Delp: Mr. Roberts, is it true that the virus must be found within the first two weeks or it is not found at all?

Mr. Roberts: In the acute stage, the virus is found in the blood stream, then the viremia subsides.

Dr. Delp: Why was this disease progressive?

Mr. Ryll: We cannot rule out the fact that the infant may have been infected transplacentally. The mother may have been a silent carrier without any symptoms herself. Cases of homologous serum jaundice have been reported in which this has occurred, and the disease continued insidiously and progressively.

Dr. Delp: The child was symptom free until about 18 months of age, was he not?

Mr. Ryll: That is how it was reported.

Dr. Delp: Do you think he might have had a viremia since uterine life?

Mr. Ryll: It is possible.

Dr. Delp: Do you think he had a viremia during this whole period of time?

Mr. Ryll: No, only at the time of the acute disease; but one cannot rule out infections at various times.

Dr. Delp: Mr. Schroff, why was his disease so relentless? Did he have a constant viremia?

Mr. Schroff: No, I did not think so, but he probably had an active hepatitis most of the time. The liver has tremendous regenerative powers despite a continuing destructive process.

Dr. Delp: Mr. Scherer, why was this child jaundiced?

Mr. Scherer: Because the permeability of the cholangioles was altered allowing diffusion of bile through the cholangioles back into the blood stream.

Dr. Delp: Was this an obstructive jaundice, Mr. Schroff?

Mr. Schroff: Physiologically, yes; anatomically, no. There was no actual obstruction in the biliary system, but there was no outflow of bile, because it went back into the blood stream.

Dr. Delp: Then you would call this a "lower lobule hepatitis"? The child came into the hospital and died rather precipitously; why was that, Mr. Scherer?

Mr. Scherer: I think he was in shock, secondary to hemorrhage.

Mr. Ryll: Such patients die during relatively minor procedures. Our patient died when a cannula was being inserted into a vein, and this procedure may have precipitated his death.

Dr. Delp: Mr. Schroff?

Mr. Schroff: I think the prothrombin response on his final admission was low, and he may have had esophageal varices.

Dr. Delp: Esophageal varices from portal hypertension?

Mr. Schroff: Yes.

Dr. Delp: Do you think he had portal obstruction?

Mr. Schroff: Yes, I do.

Dr. Delp: Do you think this is a part of the disease entity?

Mr. Schroff: Yes. There is portal obstruction when the disease progresses to cirrhosis.

Dr. Delp: Mr. Scherer, do you have an explanation for the unusual cholesterol values?

Mr. Scherer: He was reabsorbing the cholesterol, and the cholic acid in his blood was high. The entire breakdown of cholesterol is cholic acid, and it has been postulated that the equilibrium is reversed, resulting in an increased cholesterol synthesis.

Dr. Delp: Mr. Schroff?

Mr. Schroff: This may have been a lipoid storage disease, but I do not consider it likely because there was no other evidence.

Dr. Delp: Do you think the lesions on the fingers were xanthomata?

Mr. Schroff: I do not know.

Dr. Delp: Mr. Schroff, do you think the pathologist will find obstruction in the liver?

Mr. Schroff: I think he will find Laennec's cirrhosis. I do not expect to see many normal hepatic cells or bile plugs except for some bile in the smaller ducts.

Dr. Delp: What do you think about this problem, Dr. Miller?

Dr. Herbert C. Miller (pediatrician): I believe that the lesions on the fingers are somehow related to the disease. I know of no fungus that does such extensive damage in this climate.

Dr. Delp: Do you think the child had a viremia from the onset of his disease in November, 1955, to December, 1956, when he died?

Dr. C. Arden Miller (pediatrician): No, I doubt it.

Dr. Delp: Can you explain why the disease was so relentless?

Dr. Miller: No, I cannot.

Dr. Delp: Do you have any comments about the fingers?

Dr. Miller: I believe they were xanthomata.

Dr. Delp: Mr. Searle, do you agree that an exploratory laparotomy on this child was justified?

Mr. Searle: The liver biopsy was the only way to make a positive diagnosis, and a punch biopsy on a child is a risky procedure.

Dr. Delp: Dr. Manning, what do you think about the concept of hepatosis?

Dr. Robert Manning (resident in medicine): Dr. Sherlock<sup>5</sup> has reported cases of viral agents producing an unusual lesion in children. The liver has an abnormal response which pathologically shows formation of alveolar-like structures instead of liver cords in response to the injury. It would be difficult in this case to differentiate primary intrahepatic cholestasis from primary intrahepatic biliary atresia.

Dr. Delp: What do you think the biliary tract will show on the pathologist's report?

Dr. Manning: It will be patent extrahepatically and obstructed intrahepatically.

Dr. Delp: Dr. Andrews, what do you think about this?

Dr. Charles E. Andrews (internist): I suspect there will be intrahepatic obstruction.

Dr. Delp: Dr. Rankin, do you have any comments?

Dr. Thomas J. Rankin (internist): I feel certain that this child had intrahepatic obstructive disease of an infiltrative character, and the case for infection is good. I believe, however, that the lipoid storage diseases should have been more extensively considered in the differential diagnosis.

Dr. Delp: Dr. Weber, do you think this child had a persisting viremia?

Dr. Robert Weber (internist): Yes, I do.

Dr. Delp: Does anyone have any further ideas about the fingers?

Dr. Rankin: In all of the lipoid storage diseases there is a low resistance to infection. This is also true with xanthomatous biliary cirrhosis secondary to infection. In retrospect, I think this child could have developed this infection from interference with nutritional resistance to infection. I am intrigued with the fact that the fingernails were splitting before there was any other evidence of trouble, and for this reason I favor a metabolic disease rather than infection.

Dr. Delp: When I first saw this child he was itching and scratching continuously, and secondary pyoderma developed in the fingernails and on his toes. The idea of the cholesterol and lipid disturbance entering in is good, and is probably the explanation. There is a recent report<sup>1</sup> of a patient with acrodermatitis continua (Hallopeau) which reminds me of our patient, but I am not entirely familiar with that disease entity.

Dr. Frenkel, may we now have the pathological discussion?

### Pathological Report

Dr. Jacob K. Frenkel (pathologist): I must admit that I am not familiar with that entity either, and I hope that I will not be asked too many embarrassing questions about it. In the dermatologic literature the most consistent comment about xanthomatosis in childhood was that it required monographic treatment. Crocker's<sup>2</sup> article was perhaps the best. I agree with Dr. Rankin that the various histiocytoses should be considered; however, the spleen, bone marrow, and skull films were normal, and the platelet count was over 700,000. There was no central nervous system involvement. The cholesterol values are essentially normal in individuals with Letterer-Siwe's disease or eosinophilic granuloma, whereas in our patient they were markedly elevated.

The liver was enlarged and weighed 550 gm. There was a slight amount of scarring resembling Hanot's cirrhosis more than postnecrotic scarring or Laennec's cirrhosis (Figure 3). There was some proliferation of bile ducts accompanying the fibrosis. The biopsy showed a few areas where bile was inspissated both within the intrahepatic canaliculi and within the ducts; this had become more marked at the time of the autopsy. A few instances of transition from the bile canaliculi to the intralobular bile ducts were identified. The extrahepatic biliary system was normal in the gross.

The architecture of the liver as a whole was relatively normal and quite unlike that usually found with chronic viral hepatitis and postnecrotic scarring. There were many bile plugs with inflammation around



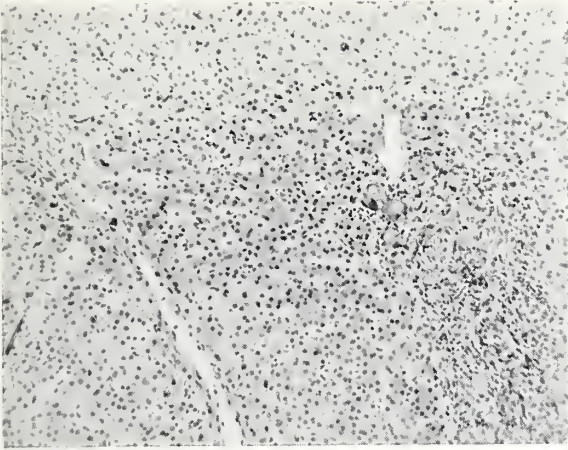


Figure 3. Liver showing parenchymal inflammation and scarring in periportal and central location. Bile plugs are indicated by the arrow. Hematoxylin and eosin X100.

the cholangioles, hence the term cholangiolitic hepatitis, referring to an inflammation of the cholangioles. This was more marked in the biopsy specimen than at the time of autopsy. Degeneration and regeneration of the liver cells persisted, the latter leading to the formation of cells with six or eight nuclei. These findings are perhaps in keeping with long continued viremia or with continued destruction due to the chronic intrahepatic inflammatory process. I cannot distinguish between the two, but tend to favor the latter, as I saw no polymorphonuclears.

The appearance of the reticulum in several areas of the liver indicated a collapse of liver tissue with lobule disappearance. The Masson stain for connective tissue indicated that there was relatively little

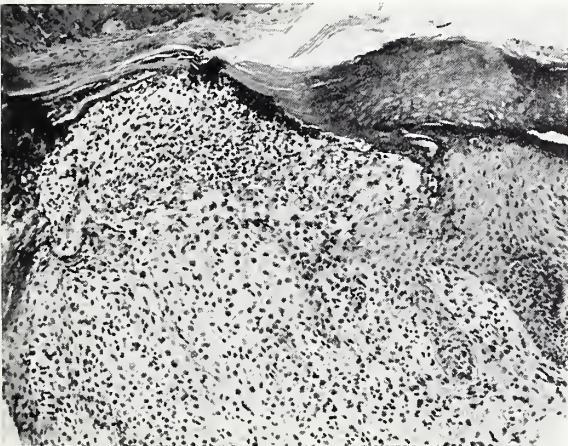


Figure 4. Skin of finger showing focal infiltration of xanthoma cells into papillary dermis with atrophy of the overlying epidermis and the development of a pustule covered by a scab. Periodic acid Schiff stain with hematoxylin. X100.

scarring in contrast to the scarring which occurs in adults.

The results of the obstruction, as Mr. Scherer pointed out, are the piling up of the cholic acid and a disturbed equilibrium with an increase in the amount of cholesterol. There were xanthomata in the liver as well as in the skin.

In regard to the skin lesions, there was a good progression of the changes. In the early xanthomas, the epidermis was somewhat elevated and slightly attenuated by cells containing lipids located in the papillary dermis. It would not be possible to distinguish these sections from those of a case of lipoid storage disease. With progressive infiltration of the dermis by these cells, there was pressure atrophy of the overlying epithelium (Figure 4). Secondary infection resulted in vesicles filled with pus located at

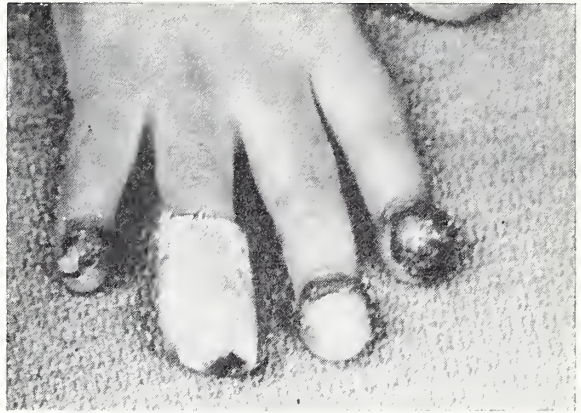


Figure 5. Photograph of hand showing ulceration of nail beds.

the dermal-epidermal junction. Desquamation of the stratum corneum led to the formation of a broadening ulcer base. The bacterial flora of these ulcers was altered by chemotherapy. Enterococci, staphylococci, and *Proteus* were cultured at the time of autopsy. No fungi were found, either by culture or staining.

In the nail beds of the fingers and toes the most marked involvement was found, leading to separation of the nail and destruction of the nail bed (Figure 5). The bases of the fingers were relatively free of xanthomas and infection. However, the axillae and groin were markedly involved. I cannot explain why the lipid containing macrophages accumulated where they did, nor why more were found at the tips of the fingers than at the base.

In summary, I interpret this as a case of cholangiolitic hepatitis. It is not known why the cholangioles appear to be especially vulnerable. Some pathologists doubt that this histological lesion is actually pathognomonic of the disease. We see cholangiolitis in any form of hepatitis, and the amount of cholangiolitis seen at autopsy is quite variable in different

cases of the so-called cholangiolitic hepatitis diagnosed clinically. There appears to be a lack of correlation between the degree of cholangiolitis histologically and the clinical symptoms. I feel that it is proper to retain this designation until there is a better explanation for the process.

An account of the history and section of this case was sent to four pathologists for consultation. Two pathologists from children's hospitals concurred with the diagnosis of cholangiolitic hepatitis, stating that they had seen similar, but less advanced, cases in children. A general pathologist with special interest in the liver interpreted the case as one of congenital biliary atresia, perhaps of incomplete nature and distributed in the larger intrahepatic ducts intervening between the hilar channels and the interlobular ductules. I would be in entire agreement with this diagnosis if there had been no history dating the onset of jaundice, dark urine, and of light stools fairly close to the 24th month of our patient's life. One might also wonder, as did one of the pediatric pathologists, about the cause of so-called biliary "atresia" from a developmental point of view; destruction of bile radicles *in utero* would be more plausible than agenesis. In this case a viral infection with cholangiolitis would be a reasonable possibility.

A fourth pathologist from a children's hospital made the diagnosis of Letterer-Siwe's disease with cholangiolitic hepatitis. Although conceding that the spleen and bone marrow did not suggest this diagnosis, he was impressed by the histiocytosis in the skin, liver, and lymph nodes. This interesting point of view, in my opinion, does not take sufficiently into account the marked hyperlipemia, the xanthomata, and the limitation of reticular cell proliferation to only those lymph nodes proximal to extensively infected skin ulcers.

It is my impression that the patient died from uncontrollable bleeding, secondary to absent or deficient vitamin K intake.

Dr. Delp: Are there any questions of Dr. Frenkel?

Mr. Searle: Can you explain the high platelet count?

Dr. Frenkel: No, I cannot, but it might serve to support the student's contention that the bone marrow was functionally intact. Where there is a bleeding tendency, it is possible to have hyperplasia of the megakaryocytes, but I am not certain of it. Dr. Delp, do you find that the platelet count goes up in bleeding due to low prothrombin?

Dr. Delp: We see it often, but I cannot explain it.

Dr. Frenkel: It is too easy to say that it is a compensatory phenomenon.

Mr. Roberts: Was there anything in the intrahepatic ducts to prevent the dye from going in?

Dr. Frenkel: Many of the ducts were plugged, but most of the plugging was at the margin of the lobules.

Dr. Herbert Miller: Do you intend to convey the impression that this is an unknown entity, or is it of an infectious nature?

Dr. Frenkel: Laboratory tests are not available to prove the diagnosis of infectious hepatitis; the virus can be isolated only in human volunteers. For this reason we can never be certain of any type of viral hepatitis. The consensus is that this may be a complication of "infectious hepatitis."

Dr. Delp: I believe the nail lesions are something new and have not been previously described. The relationship to the high cholesterol in this case makes this something of an original contribution. I have never seen such lesions, but they must be related to the disturbed lipid metabolism. I still have a question: If the child had infectious hepatitis and if viremia was the cause of the hepatitis, did he have a viremia during the year of the illness? I do not know, but I suspect he did have it a good part of the time. I suspect that if volunteers had been injected with his blood, they would have developed infectious hepatitis.

I should point out, however, that it is possible that a hyperreactive state may occur in the liver, much as occurs in the heart that has been insulted with the streptococci and subsequently develops acute rheumatic carditis.

It is becoming increasingly difficult for me to accept the present explanations of cholangiolitic hepatitis. The explanation for the jaundice on the basis of obstruction is not satisfactory. It seems more reasonable to assume that perhaps there is tubular failure within the liver itself. I believe that at the present moment we are in almost the same position that we were a few years ago when we were talking about lower nephron nephrosis.

## Summary

Dr. Delp: The history suggested infectious hepatitis. Physical findings of jaundice, pruritis, enlarged liver and, most striking, the bulbous, exudative lesions involving the nails and fingers, were not helpful in the differential diagnosis. Liver function tests with the markedly elevated serum bilirubin, alkaline phosphatase, and cholesterol suggested an obstructive lesion. One entity best fitting this contradictory evidence is "cholangiolitic hepatitis," which is itself controversial and unacceptable as a diagnostic term to many pathologists.

Direct inspection of the extrahepatic biliary tract, as here, fails to show obstruction in this situation. Intrahepatic biliary stasis does seem to exist, but the assumption that real intrahepatic obstruction is present is questionable.

Most unusual in this case was the peculiar involvement of the nails and terminal phalanges; seemingly abnormal cholesterol deposition is here the explanation.



## Pathological Anatomical Diagnosis

### Primary

Cholangiolitic hepatitis.

Secondary hypercholesterolemia.

Secondary xanthomatosis with generalized ulceration and infection with *Proteus*, enterococci, staphylococci.

Lipoidosis of aorta, slight.

Bilirubinemia with cholemic neprosis, slight.

Altered blood in stomach and intestine.

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1. Calkins, Evan; Reznick, Leon, and Bauer, Walter: Clinical and metabolic effects of prednisone, prednisolone and cortisone in a patient with acrodermatitis continua (Hallopeau), *New Eng. J. Med.* 256:245 (Feb. 7) 1957.
2. Crocker, Allen C.: Skin xanthomas in childhood, *Pediatrics* 8:573-577, 1951.
3. Gall, E. A., and Braunstein, H.: Hepatitis with manifestations simulating bile obstruction (so-called "cholangiolitic hepatitis"), *Am. J. Clin. Path.* 25:1113-1127, 1955.
4. Peace, R.: Fatal hepatitis and cirrhosis in infancy, *A.M.A. Arch. Path.* 61:107-119, 1956.
5. Sherlock, Sheila: Hepatitis Frontiers, Henry Ford Foundation Symposium, Little, Brown & Co., (in press).

## Answers to Tax Quiz

1. (b) On leased property, you normally spread the cost of improvements over the shorter period—the life of the improvement or the term of the lease. Since your lease expires in four years and presumably the furnishings will have a longer life than that, you should be able to claim a \$250 deduction on your federal tax return for this year and the next three years.

2. (c) The money you received from the company must be reported as income, but you may deduct the cost of moving your entire family. If the amount the company gives you exceeds your expenses, the excess is taxable. Conversely, however, if your expenses were more than the amount received, the difference is not deductible.

3. (a) and (b) are both correct. All taxpayers are entitled to a \$50 dividend exemption. A husband and wife can combine their exemptions and receive \$100 in dividends tax free, providing the stock is jointly owned. The filing of a joint return will not qualify them for this double exemption if the stock is held in only one of their names.

4. (c) You cannot deduct contributions to an organization which spends a substantial part of its time lobbying or distributing political propaganda.

5. (a) You gained a son-in-law but lost a \$600 dependency exemption for 1957 when your daughter married in November. All is not lost, however. If you provided more than one-half of your daughter's support during the year, you may claim her medical expenses as a deduction on your return.

6. (c) Watching television can be most relaxing and it might even help you to forget your poker losses—which is the thing to do because net gambling losses are definitely not deductible. Net gambling gains are taxable as income; if you won money in a football pool or other sources, you may use your poker losses to offset these gains.

7. (b) The IRS has ruled that "if the repairs do nothing more than restore the property to its condition immediately before the casualty and do not add to (its) value, utility or useful life, such repair costs may be used as a measure of the value of the destroyed portion." Where you were going at the time of the accident does not affect the deductibility of car damages.

8. (b) Commutation fees are not a deductible business expense. The cost of going to and returning from work, whether it be by bus, cab, train or plane, is not deductible since it is a personal expense. On the other hand, a and c are deductible.

9. Damage to your shrubbery caused by children, dogs or errant lawnmowers is not deductible. If your home or lawn is damaged by fire, storm or flood the loss not covered by insurance may be deducted. When large amounts are involved it is wise to have an expert appraisal made immediately after the casualty.

10. (b) Since your son works for *you*, you are not supposed to pay social security tax on his wages, nor is he required to make contributions. If your business is incorporated, however, the corporation must pay social security tax on his salary.

11. (a) Your deduction for a charitable contribution is the value of the gift at the time it is made. You are not considered to have realized a taxable gain or deductible loss when you give property away. You may claim a deduction for the entire \$1,500 so long as this amount does not exceed 20 per cent (30 per cent in some cases) of your adjusted gross income.

12. (b) The roof is considered an improvement, not an ordinary repair. The cost of replacing the roof is deductible as depreciation spread over its estimated useful life.

13. (c) In the absence of fraud or substantial understatement of income, the Government has three years from the due date of your 1957 return to check your return and bill you for additional tax. Since the due date of most individual returns is April 15 and for investigation purposes all returns are treated as though filed on the due date, you should be sure to save all check stubs and receipted bills to prove your declared deductions until April 15, 1961.

14. (c) The fee which a CPA charges you to prepare a tax return or defend the accuracy of your return before the Treasury Department is deductible in full if you itemize deductions.



# The Frozen Shoulder

## *Study of Its Anatomy, Symptomatology, Etiology, Pathogenesis, and Treatment*

JAMES B. DEGNER, M.D., *San Antonio*

The clinical entity today known as the "frozen shoulder" is commonly seen in general practice. However, in general, it is very poorly understood. The purpose of this paper is to present a brief but representative survey of the literature of some observations on the anatomy, symptomatology, etiology and pathogenesis, and treatment of this condition.

### **Anatomy**

To help understand the clinical entity of the frozen shoulder, one must first become acquainted with the anatomical relationships of the various parts of the shoulder. The shoulder is a synovial joint with embryonal origin from mesenchymal tissue, organized actually as four joints working in harmony with ball and socket type action to give multiaxial function and smooth scapulohumeral rhythm with a range of motion seen in no other joint in the body.<sup>16,29</sup> The blood supply is from the anterior and posterior humeral circumflex and suprascapular arteries. Innervation is from the circumflex, suprascapular, and subscapular nerves.<sup>16</sup>

The joint is surrounded by a loose fibrous capsule into which tendons of the short rotator cuff muscles, the supraspinatus, infraspinatus, subscapularis, and teres minor, are intimately joined to form a musculotendinous cuff, which carries a large part of the weight of the arm. The muscles of elevation, because of the anatomy of shoulder position, do not have good leverage, so abduction is a comparatively weak function. The supraspinatus must be intact for deltoid function, and, similarly, the deltoid for scapular function.

The external surface of the joint, capsule, and musculotendinous cuff is covered by a bursa or gliding surface, the subdeltoid (subacromial) bursa.<sup>18</sup> There are eight bursa of the shoulder. The two most important clinically are the subdeltoid, which does not communicate with the joint space but lies just above the supraspinatus tendon, and the subscapular bursa, which is between the subscapular tendon and the articular capsule and does communicate with the

joint capsule.<sup>16</sup> Hitchcock<sup>19</sup> emphasizes that contrary to popular opinion the tendon of the long head of the biceps which passes into the capsular ligament is fixed and the humerus moves on the tendon in a synovial pouch, especially in forward flexion and abduction.

### **Historical**

Duplay in 1896 was the first to recognize and describe pathological disorders of the extra-articular structures as possible factors responsible for stiff and painful shoulders, and he called this entity "scapulohumeral peri arthritis."<sup>11</sup> In 1934, Codman,<sup>7</sup> who had devoted much of his life to the study of shoulder lesions, found this entity "difficult to define, difficult to treat, and difficult to explain from the point of view of pathology." He termed it an adherent subacromial bursitis.

The term "frozen shoulder" crept into the literature in the early 1930's.<sup>17</sup> At various times and by various investigators, the entity has been called peritendinitis, periarticular calcifications,<sup>6</sup> para-articular calcification, subdeltoid or subacromial calcification, para-arthritis, Duplay's disease, calcic or calcific bursitis, soft-tissue rheumatism,<sup>1</sup> neuritis, fibrositis, capsulitis, adhesive capsulitis,<sup>28</sup> tendinitis, subacromial bursitis, supraspinatus tendinitis, and stiff painful shoulder. More recently Quigley<sup>32</sup> has coined the term "checkrein shoulder."

### **Etiology and Incidence**

From the literature on the subject it is early evident that at the present date actually little is known of the etiology, pathology, or pathogenesis of this entity. Various agents and factors have been incriminated in the etiology of the frozen shoulder, and attention has been focused separately or conjointly on the following main factors: (1) a primary tendinitis, usually involving the long head of the biceps or the supraspinatus, with or without an associated subdeltoid bursitis; (2) calcifying tendinitis with calcareous deposits and a subdeltoid bursitis; (3) periarticular adhesions, and (4) adhesive capsulitis.<sup>16</sup> Codman<sup>7</sup> and others feel that anything which may cause spasm of the short rotator muscles or adhesions about the joint or bursa is covered by the term "frozen shoulder." Toxic, metabolic, and infectious factors have been im-

This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Degner is now serving his internship at Lackland Air Force Base, San Antonio.

plicated in reports; however, much further investigation along this line is desirable. The old masters believed most cases of frozen shoulder were due to a type of tuberculosis of the joint, but they did recognize a special type that never suppurated, called it "caries sicca" and gave these patients an excellent prognosis.<sup>17</sup>

The syndrome of the frozen shoulder is usually found in people from 40 to 60 years of age with a peak incidence between the ages of 45 and 55. Stiff or frozen shoulder is becoming an increasingly frequent complaint, presumably because a greater percentage of the population is older, and Kitay<sup>21</sup> states that five per cent of all persons over the age of 40 years complain of a painful shoulder with limitation of motion at some time. Various authors have stated the sex incidence to be slightly greater in females, especially in the menopausal age, ranging from 50 per cent to 68 per cent.<sup>11</sup> Fletcher<sup>16</sup> stated the right shoulder is involved in two thirds of cases and is most often unilateral.<sup>15</sup>

## Pathology

DePalma,<sup>10</sup> who operated on the shoulders of 42 patients, found a diffuse inflammatory process of varying severity involving all soft tissue components of the scapulohumeral joint, not restricted to a specific region of the joint. However, the biceps tendon was involved in all instances, whether primarily or secondarily, and this led him to believe that bicipital tenosynovitis is a causative factor in 65 per cent of cases.

Hitchcock<sup>19</sup> found that faulty anatomical mechanisms were responsible in a few cases such as a supratubercular ridge or a flat bicipital groove, which could initiate inflammatory process in and around the long head of the biceps tendon and eventually result in a painful and frozen shoulder.

Turek<sup>41</sup> in a survey study of the pathology of this condition found that a microscopic examination of the tissue of the cuff showed a diffuse chronic inflammatory process with degeneration of collagenous tissue, increased vascularity, cuffing of blood vessels, and mononuclear cell infiltration.

In 1949 DePalma<sup>11</sup> showed that the degenerative process starts as early as the second decade of life and is maximal in the sixth decade. The earliest noted lesions were an unevenness, fibrillation, and furrows in the tendons and cuff. Later this progressed to pitting erosion and marginal bone proliferation. The biceps tendon was especially noted to be involved in the fifth decade. The capsular degeneration leaves the long head of the biceps holding most of the weight of the shoulder, subjecting the biceps tendon to further minor traumatic incidents from which symptoms may evolve. Tearing, fraying, degeneration of colla-

gen with fibrosis, and increased vascularity are progressive with age.<sup>41</sup> Alexander<sup>1</sup> verified the above pathological findings in his study.

Calcifications of the tendons of the musculotendinous cuff are noted in from 20 per cent<sup>32</sup> to 50 per cent<sup>29</sup> of cases. Newport<sup>29</sup> reported 20 per cent of his series due to subdeltoid bursitis and 10 per cent due to adhesive capsulitis.

Furlong<sup>17</sup> found tendon collagen infiltrated with fibrous tissue and chronic inflammatory cells with the blood vessels partially obliterated with small patches of avascular necrosis, more typical of ischemia than of infection generally. Although no serial histological data is available, it is presumed that this is a reversible process as most patients will recover spontaneously if left alone.

Young<sup>42</sup> states that in 53 per cent to 80 per cent of cases of painful and stiff shoulder, the bursa is involved in some manner, be it primarily or secondarily. Quigley<sup>32</sup> recently quoted "out of several hundred operations," "no torn rotator cuffs associated with stiff shoulder and no stiff shoulders associated with a torn rotator cuff" were found. However, many investigators include ruptured tendons of the rotator cuff muscles as a not infrequent cause of a frozen shoulder. Pathologically, a sterile inflammation usually about calcific deposits in the rotator cuff was found. Osteoporosis was noted in late cases.

Quigley<sup>32</sup> suggests the name "checkrein shoulder" because of the pathology he found of adhesive capsulitis involving principally the "anterior and inferior portions of the capsule" where gravitational effects caused the synovial fluids to be involved in adhesions acting as a checkrein to active and passive motion of the arm, especially abduction.

## Pathogenesis and Symptomatology

The natural history of the frozen or stiff shoulder indicates that the syndrome is essentially self-limited and may have a clinical course lasting from a period of several months up to two to three years.<sup>26</sup> In following the clinical course of patients with stiff and painful shoulder, one finds in general that the four major factors involved in the pathogenesis of this condition are (1) age, (2) recurrent minor trauma, (3) pain, and (4) muscle spasm or immobilization of the shoulder joint with resultant muscular inactivity.

A typical case would be for a 50-year-old female typist going through her menopause to notice the gradual onset of a dull, toothache-like pain at the cap of the humerus or the insertion of the deltoid. The patient may blame her "rheumatism" on a slight cold, sitting in a draft, or some minor trauma, or she may have no explanation for it at all. Pain is more marked with movement, especially movements utilizing abduction, and may be noticed while putting on



a coat, combing hair, or reaching for objects above the height of one's head. The symptoms are usually progressive, but several months may elapse before the patient will report to a physician for relief. The onset may be acute, in which case there may be a history of slight strain or sprain or overuse. Pain is usually worse toward the end of a working day<sup>7,21</sup> or at night and may actually prevent sleep.

Drugs, including narcotics, may become ineffective in relieving pain, which may at times be unbearable, constant, and disabling<sup>18</sup> and may break even a strong man<sup>7</sup> or drive one to suicide. The patient is usually unable to lie on the affected side. The pain may radiate down the arm or into the neck and reflexly create spasm of the rotator cuff muscles, pulling in the head of the humerus high into the glenoid and produce immobilization which in turn tends to relieve the pain. Typically, the patient's extremity will not function in the elevated, externally rotated, and abducted positions, and the patient may involuntarily lose her grasp on objects when lifted into certain positions.

With pain and muscle spasm, voluntary movements become difficult to make. In approximately one week to one month or so, motion of the shoulder becomes definitely limited, especially external rotation<sup>34</sup> and abduction. Stoddard<sup>40</sup> states that immobilization for as short a time as two to seven days may result in a frozen shoulder with only scapulothoracic motion remaining. Varying degrees of limitation of motion exist from slight limitation of active motion in one axis to actual fixation of the shoulder and limitation of active and passive motion in abduction, flexion, and external rotation.

Clinical weakness of shoulder muscles may be demonstrable in three to four days if pain is present. Lack of movement allows adhesions to form in the bursa and shoulder joint from decreased normal circulation and synovial fluid production.<sup>26</sup> Farkas<sup>14</sup> and DePalma<sup>10</sup> believe that all soft tissue adjacent to and comprising the musculotendinous cuff becomes saturated with a serofibrinous exudate, and it is primarily the muscle arrest which induces venous congestion and edema, which eventually results in capsular, synovial, fascial, intermuscular, and intramuscular adhesions.

Coventry<sup>9</sup> believes a "peri-arthritis personality" plays an important role in pathogenesis in many cases. This type of person is hyperemotional with hyperactive vasomotor responses, is usually under physical and mental strain, is often tired out, restless, unstable, refuses to take the initiative, and often has a secondary anemia with a moderately accelerated erythrocyte sedimentation rate. DePalma<sup>10</sup> firmly believed the origin of pain was primarily the result of a tenosynovitis of the biceps tendon in approximately

65 per cent of cases. Turek<sup>41</sup> theorized that the pathogenesis lay with the basic mesodermal tissues degenerating with age and repeated minor trauma with a resultant decrease in elasticity and compression of soft tissue between the head of the humerus and the acromium process, which occurred especially with abduction and especially over the greater tuberosity. Edema, congestion, and fibrosis establish a cycle leading to fixation of the joint.

Factors favoring muscular inactivity are (1) involuntary splinting and immobilization which occurs secondarily to pain, and (2) voluntary immobilization sometimes instituted by a physician in treatment of some disease such as coronary heart disease, chronic lung disease, fractures of the arm, and even the painful shoulder, to name a few.

The scope of this paper is too limited to expound on conditions which may cause pain in the shoulder, and a number of conditions have been mentioned earlier in the report, but a few of the more common causes of a painful shoulder which may ultimately result in a frozen shoulder are: biceptal tenosynovitis, calcareous tendinitis (especially supraspinatus) with or without a secondary bursitis, sprain, contusions, fractures, and occasionally ruptures of the rotator cuff. Calcification in tissue does not always result in symptoms, as evidenced by Bosworth<sup>6</sup> in his study of more than 12,000 supposedly normal shoulders and finding 2.7 per cent with x-ray evidence of calcifications.

Once the patient voluntarily or involuntarily immobilizes the shoulder, the rapidity of the process increases.<sup>17</sup> Usually, at about six weeks, the pain starts to decrease and motion progressively begins to increase until normal mobility in all ranges is usually regained by six months. However, the whole cycle may take from 18 to 36 months. Full range of motion is recovered in 60 per cent to 100 per cent of untreated cases or "adequately" treated patients without complications. Those patients who do not fully recover usually have only mild to moderate limitation in the extreme ranges where practical function is of no great benefit unless there is some complicating factor. Late findings after prolonged immobilization are a mild but definite disuse atrophy of the supraspinatus and infraspinatus muscles<sup>34</sup> and disuse atrophy of bone. Atrophy roughly parallels the duration of disuse.<sup>32</sup>

Repeated insults, movement, and trauma during the acute or subacute stage lead to more splinting and muscle contractions, which results in overloading of the internuncial pool so that reflex muscle splinting spreads to involve other muscles innervated by the same cord segment. Since this fifth, cervical segment supplies many muscles with many different functions, the shoulder and arm may be extensively affected.<sup>35</sup>

Most observers agree with Codman that acute or

chronic trauma or overuse leads to rupture of a few fibers of some tendon, usually the biceps or supraspinatus, and to formation of small hematomas which subsequently calcify.<sup>42</sup> Shoso<sup>36</sup> suggests that a condition occurs in the capsule similar to that in the myocardium: a decreased vascularity with decreased carbon dioxide tension and an increased alkalinity resulting in precipitation of calcium salts and necrosis.

## Diagnosis

To make an accurate diagnosis of the various lesions which can cause painful and subsequent frozen shoulder, one should have some knowledge of orthopedics, neurology, cardiology, and of diseases of the abdomen, thorax, and blood vessels. In evaluating this syndrome it is necessary to obtain a detailed history, including occupation, trauma, and details about pain, a complete physical examination of all systems, and x-rays if indicated. Often the diagnosis is made by the patient as a bursitis and is accepted and treated as such by the physician.<sup>4</sup> Young<sup>42</sup> states that frozen shoulder is associated with bursitis in 53 to 80 per cent of the cases.

To list or give a classification of the many etiological factors which may result in frozen shoulder is not the purpose of this article. If one can determine whether the source of difficulty is neurogenic, myogenic, arthrogenic, or vascular in origin and whether trauma, infectious, or mechanical factors are involved, one can usually narrow the differential diagnosis. Thoracic inlet syndrome and referred pain from the heart or other viscera should be ruled out.<sup>31</sup> If calcifications are noted by x-ray, one must rule out hyperparathyroidism as a rare but possible cause. It is important to diagnose ruptures of the rotator cuff early as these lesions may result in permanent dysfunction if not repaired by surgery. Ruptures can usually be diagnosed by eliminating the factor of pain and observing to see if the patient has active motion remaining in the range of motion supplied by the suspected ruptured muscle or tendon. The differential diagnosis of the cause of frozen shoulder is often difficult but important to make for reasons of treatment and prognosis, and a plea is made for physicians to acquaint themselves with the condition so that a fairly standard classification of diagnosis and definitive treatment may evolve.

## Observations on Treatment

Treatment of the frozen shoulder is symptomatic, for the most part, and empirical. If adequate and early treatment of acute and chronic painful shoulder is instituted, one may not have a resultant "frozen shoulder." Lack of an early or accurate diagnosis accounts for many poor results reported in the literature, and treatment is of questionable value in the

first place since this is usually a self-limited condition. The goal of treatment is (1) primarily to do no harm,<sup>17</sup> (2) to relieve pain, and (3) to restore muscular function and range of motion. Medication and therapy are used to try to break up the cycle in the pathogenesis of the frozen shoulder.

It is important to begin treatment as early as possible in order to relieve pain and permit early mobilization to prevent further adhesions from forming. Rest is of benefit in the relief of pain, and the patient may do this unconsciously. Rest does not mean immobilization, and Regan<sup>33</sup> feels that passive stretching exercises in all ranges of motion are indicated, increasing the range past the pain threshold each time at intervals of 30 minutes during the day to prevent further adhesions and help break up old adhesions. Rose<sup>35</sup> recommends rest in a functional position without immobilization, utilizing a bib sling for the forearm with avoidance of the triangular sling. Berg<sup>3</sup> recommends neck traction and posture correction in many of his cases.

Boland and Rosenberg<sup>4</sup> recommend acetylsalicylic acid or butazolidine as analgesics in cases where pain can be controlled by these medications. Codeine and strong narcotics are occasionally utilized temporarily to control acute pain, although there is danger in use of narcotics in any chronic condition. Relief of tension is important in these patients and may aid in quicker recovery. Duncan<sup>12</sup> emphasizes the importance of encouragement of the patient in exercises as the patient, not the physician, must perform them for expected benefits.

ACTH is also utilized in treatment because of its anti-inflammatory nature, and its side effect of producing euphoria also aids in management. Sedatives and muscle relaxants<sup>35</sup> are of value to some patients. Injection of trigger points with 2 per cent procaine often provides immediate relief from pain.<sup>34</sup>

Heat is utilized in various forms for its effect of increasing the blood supply to the area. If an acute inflammatory process is present, heat is frequently aggravating by causing added congestion in the area, and an ice bag may be of some benefit in such a case. Heat may be applied in the form of x-ray, infra-red, ultra-violet, diathermy, massage, ultrasonic, or histamine ointment, and each has its proponents. However, so far as is known, each is best used in conjunction with other types of therapy. Vasodilator drugs have been tried without dramatic results.

Shoso<sup>36</sup> believes that x-ray irradiation is the most rapid, convenient, and satisfactory method of treatment, especially in subacute cases, and he had only about 4 per cent recurrence utilizing the dosage; 140KV, 15MA, 50CM-TSD, 150r in air every other day for a six-day total of 450r.

Ultrasonic diathermy was not used in this country



until 1946, but since then it has gained some acclaim in benefiting up to 80 per cent of patients. Lehman<sup>22</sup> indicates that this is a good method of heating deep tissues and is beneficial in conjunction with other methods of treatment. He takes great care to avoid overdosage and subsequent destructive phenomena.<sup>23</sup> Contraindications to its use are malignant metastatic growths in the axilla, inflammatory infiltrations of the lung, or coronary heart disease.<sup>23</sup> Massage and histamine ointment are easily utilized for home treatment.<sup>35</sup>

Needling and injecting trigger points or calcifications is an office procedure and often provides immediate and adequate results. Occasionally two large needles are placed into the capsule and irrigation with normal saline to wash out calcium laden fluids and deposits is utilized. Steroids were first used in the treatment of this condition in 1951. Orbach<sup>30</sup> had excellent results with local injection of hydrocortisone acetate into the joint space, and Steinberg<sup>39</sup> had dramatic results utilizing ACTH 50 USP units twice on the first day and once each on the second and third days.

Murnahan et al.<sup>27</sup> used hydrocortisone with hyaluronadase 1M, not injecting into the joint, and had remarkable results with increased range of motion and relief of pain. Crisp<sup>8</sup> used a similar combination and noted 94 per cent of his patients improved with 72 per cent completely recovered in 7 to 12 days time. Hollander<sup>20</sup> had 852 patients in whom he injected intra-articular hydrocortisone and noted successful relief of symptoms in 85 per cent. Permanent relief was noted in 20 per cent but 54 per cent had recurrences. Results similar to those above have been noted from the oral ingestion of steroids.

Restoration of function is attained by the use of (1) physical therapy, (2) manipulation in selected cases, and (3) surgery. Active and passive exercises are begun as soon as the patient is able after the relief of pain. Progressively graded exercises to tolerance and past the point of pain in all ranges of motion are essential in preventing further adhesions and helping to break down adhesions already present.

Manipulation is of questionable value and is not utilized as frequently as it has been in the past although many reports indicate that relief from pain is obtained with manipulation under pentothal anesthesia.<sup>1, 2, 15, 32, 33</sup> DePalma<sup>10</sup> reported tears and ruptures of the cuff and tendons following manipulation and, like many other investigators,<sup>17, 25</sup> now does not use manipulation except in select cases. If adhesions are present, more than likely the patient also has osteoporosis, and the humerus may easily be fractured by manipulation. Brachial palsy has been reported following manipulation.<sup>25</sup>

Many physicians do not recommend surgery ex-

cept in some late chronic cases. Surgery has been used in excision of calcium deposits,<sup>6</sup> transplanting the biceps muscle to coracoid process in late cases,<sup>6</sup> and excision of the acromion process to provide for free motion in abduction.<sup>10</sup> Turek<sup>41</sup> lists the indications for surgery in this condition as: (1) failure to respond to conservative treatment with regard to motion and pain, (2) too slow improvement, economically undesirable to the patient, (3) recurrence, and (4) suspected gross damage to the cuff, tendons, or bony structure. Various combinations of the above mentioned methods of treatment have been utilized by various authors.

### Summary and Conclusions

The "frozen shoulder" as a clinical entity is discussed with a brief but fairly representative survey of the literature. The anatomy of the involved area is reviewed, and a brief history of the entity is given.

Attention has been focused separately or conjointly on the following factors etiologically: a primary tendinitis, a calcifying tendinitis with or without a secondary bursitis, periarticular adhesions, and adhesive capsulitis.

The condition is found usually in people from 40 to 60 years of age and is increasing in frequency, presumably because a greater percentage of the population is in the older age group.

Histological pathology varies but in general shows a diffuse chronic inflammatory process with degeneration of collagenous tissue, sometimes beginning as early as the second decade but maximal during middle age. Often calcifications are found in and around frayed tendons, and occasionally complete rupture of tendons is noted.

The syndrome is usually self-limited and the clinical course may last from several months to several years. A cycle involving recurrent minor trauma, pain, and muscle spasm or muscular inactivity is established in the pathogenesis of this condition, and limitation of motion may involve any or all axes with limitation of active and passive motion.

Diagnosis is often difficult and is not stressed in this report. However, a plea is made for physicians to acquaint themselves with the syndrome so that a fairly standard classification of diagnosis and thus a more definitive treatment may evolve.

Treatment depends somewhat on accurate diagnosis, but is, for the most part, symptomatic. The goal of treatment is primarily to do no harm and to instigate measures to interrupt the cycle of pain and muscle spasm and immobility important in the pathogenesis of the syndrome. Physical therapeutic measures utilizing rest, heat, and exercises often used in conjunction with medicines such as analgesics, including needling and injection of trigger points, antispasmodics,



and steroids have been beneficial. Indications for surgery are listed.

The statistical data presented vary widely, even though an attempt was made to choose fairly representative articles on the subject with large series of patients. It is clear that much investigation and analysis of cases are desirable in order to increase our present knowledge of the frozen shoulder syndrome.

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## Chemotherapy in Tuberculosis

(Continued from Page 10)

anism with a resulting decrease in the manifestations of illness. In patients seriously ill with tuberculosis of long duration there is evidence of adrenocortical hypofunction. Steroid therapy used with concomitant antituberculosis chemotherapy often effects striking symptomatic improvement. Thus, without anticipating any change in the ultimate outcome, the use of steroids would appear to be justified, if only for its symptomatic effect, in patients hopelessly ill with advanced tuberculosis. In acute forms of tuberculosis associated with severe clinical illness, steroids may be helpful. This is especially true of miliary and meningeal tuberculosis. In the latter condition, prevention and relief of cerebrospinal fluid block has been attributed to steroids.

Close to 500 children under 14 years of age are fatally poisoned each year in the United States, according to a report from the Kansas State Board of Health.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

Eleven years ago, in passing the National Employment Act of 1946, Congress provided for two organizations whose sole function is to promote maximum employment, maximum production, and maximum purchasing power. One is Congress' own Joint Economic Committee; the other, the President's Council of Economic Advisers.

The President's Council constantly studies all forces—social as well as financial—that affect employment and production, and before each January 20 makes its report to the President, who in turn utilizes that in drafting his annual economic report to Congress.

At the same time the Congressional Joint Economic Committee is making its own separate studies, holding hearings and preparing a background of information against which to judge the President's economic recommendations when they come before it. The Congressional committee, however, is wholly advisory; it does not itself draft legislation but makes public its annual report before each March.

Although this committee is denied legislating power, its influence often directs the course of legislation. For example, a strong, one-page report from this committee is credited with keeping Congress in session after start of the Korean war and thus preventing a scheduled decrease in taxes.

When it calls in witnesses, the Joint Committee attempts to obtain a broad cross-section of opinion—the liberal along with the conservative. For this reason, recent hearings under sponsorship of the Joint Committee attracted more than casual interest. They brought together conflicting general philosophies and controversial specific issues. In the health-welfare fields, the following were some of the views:

The question of hospitalization for the retired aged through the Social Security mechanism was debated pro and con by the panelists. Two views:

Prof. Wilbur Cohen, University of Michigan: The former Social Security official maintains that the system can stand the drain of hospitalization for the aged. It could be done for one half of 1 per cent of taxable income, he argued, and he would raise the latter to the first \$6,600 of income instead of the present \$4,200.

W. Glenn Campbell, American Enterprise Association: Congress should give the medical profession and

the insurance industry a chance to work out this problem through traditional methods rather than institute a costly compulsory system with all its attendant damage to the effective practice of medicine.

Two other panelists expressed parallel views on the broader and philosophical aspects of health and welfare:

Secretary Folsom of HEW: The burdens of disease, disability, ignorance and insecurity cannot be escaped by under-investment in health, education and welfare. Such an under-investment would have a costly effect on private charities, budgets of governments, efficiency of industry and the purchasing power of consumers.

Professor Clarence D. Long, Johns Hopkins University: An expansion of social welfare programs will have a very great stimulating effect on the economy, provided we play down those programs that involve mere charity and emphasize those that help people help themselves.

On the day of the hearing on health, education and welfare, the panelists agreed that no cash programs in education were called for despite the scientific manpower shortages. Other comments on education:

Professor Paul J. Strayer, Princeton University: Either federal aid will be forthcoming on terms that can be acceptable to the states or we will suffer a general deterioration in the quality of education.

President Howard R. Bowen, Grinnell College: Federal aid should not be granted directly to colleges and universities but through intermediary non-profit corporations controlled by boards of trustees made up of distinguished citizens.

### Notes

A possible indication of legislation in 1958 comes from a December tour of southern medical schools by members of the House Interstate and Foreign Commerce Committee's health subcommittee. Among other things, they were concerned with the schools' need for more laboratories and classrooms.

The Department of Health, Education, and Welfare has started a 12-year study on the activities of a group of 3,000 newly retired men and women.

Between July 1 and mid-December, almost half the population of the country had been taken ill with an upper respiratory condition, including Asian influenza.

In its first year of operation, Medicare spent \$43 million, with \$22 million going to civilian physicians and \$21 million to civilian hospitals; administrative costs ran about 3 per cent. Some claims are still pending.

## PHYSICIANS' ACTIVITIES

**Dr. I. J. Waxse**, Oswego, was speaker at the November meeting of the Woman's Auxiliary to the Labette County Society in Parsons. His subject was "Physical Fitness of American Youth."

Members of the staff of St. Rose Hospital, Great Bend, honored **Dr. Marion F. Russell** at a dinner on November 21 in recognition of his 50 years of practice. Also attending the dinner were Dr. Russell's two sons, **Dr. Homer Russell**, who practices in association with his father, and **Dr. M. F. Russell, Jr.**, of Rochester, Minnesota.

**Dr. Salvatore A. Scimeca**, formerly of Caney, is now practicing in Axtell.

A plaque in recognition of many years of service as fire department physician was presented to **Dr. Francis S. Carey**, Kansas City, recently. The inscription read "Dr. Francis S. Carey, in sincere appreciation of his many years of unselfish service to the firemen. From Firemen of KCK Local 64, I.A.F.F."

**Dr. Murray C. Eddy**, Hays, has been elected to the board of governors of the American College of Surgeons.

Plans to retire on January 1 were announced last month by **Dr. Herschel R. Turner**, Hope. The physician, who is 80 years old, has practiced in Hope for more than 40 years.

**Dr. James Brown** of Glasgow, Scotland, has joined the medical staff of the Southeast Kansas Tuberculosis Hospital in Chanute. Educated at Glasgow University, Dr. Brown has been working in the field of tuberculosis since 1954.

**Dr. Paul H. Lorhan**, of the University of Kansas Medical Center, has been asked to conduct a course on geriatric anesthesia at a meeting of the American Society of Anesthesiologists in New York, March 9.

**Dr. Henry O. Marsh**, Wichita, attended the

annual meeting of the American Academy of Cerebral Palsy in New Orleans, November 24-27, and was elected to active membership in the organization.

The Reno County Board of Commissioners has employed **Dr. Jay Armstrong**, whose former address was the University of Kansas Medical Center, Kansas City, to serve as county physician with headquarters in Hutchinson.

**Dr. Ernest C. Moser**, Holton, spoke to the Rotary Club in his home city on November 22 on the present status of medical education.

The American College of Physicians announces that five Kansas physicians became fellows at its meeting in Philadelphia last month: **Dr. Max Scott Allen** and **Dr. Robert A. Jordan** of Kansas City, **Dr. Robert S. Wallerstein** of Topeka, **Dr. George Loren Norris** of Winfield, and **Dr. Russell M. Wilder, Jr.**, of Topeka. Named as associates in the college are: **Dr. James E. Crockett**, **Dr. Martin J. FitzPatrick**, and **Dr. Charles M. Poser** of Kansas City, **Dr. H. Alden Flanders** of Hays, **Dr. Bernard H. Hall** of Topeka, and **Dr. Thomas J. Coleman** of Wichita.

**Dr. William Burger**, who succeeds **Dr. Francis Carey** as physician to the fire department in Kansas City, was a guest of honor at the annual ball of the Firemen's Relief Association in Kansas City last month.

**Dr. Charles B. Wheeler, Jr.**, has been appointed instructor in pathology and oncology at the University of Kansas School of Medicine. Dr. Wheeler, a graduate of the school in 1950, has had residencies in pathology at St. Luke's Hospital in Kansas City, Missouri, at the University of Maryland in Baltimore, and at the Veterans Administration Hospital in Wadsworth.

"Parotid Carcinoma—Aids in Solving a Dilemma in Management" was the subject of a paper presented by **Dr. David Robinson**, of the University of Kansas Medical Center, at a Pan-Pacific Congress of the American Society of Plastic and Reconstructive Surgery in Honolulu in November. He was assisted in preparing the paper by **Dr. James Boley**, **Dr. Creighton A. Hardin**, and **Dr. Herbert J. Forrest**.



**Dr. Richard E. Bartman**, acting clinical director of the Parsons State Hospital Training Center, was speaker at the November meeting of the Shawnee County Association for Retarded Children in Topeka. He discussed new concepts in care, treatment, and training of the mentally retarded.

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"Treating Overweight Patients" is the subject of a paper written by **Dr. George L. Thorpe**, Wichita, and published in the November 16 issue of the *Journal of the American Medical Association*.

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**Dr. D. Cramer Reed**, Wichita, presented an exhibit, "Infertility in the Male," at the mid-winter meeting of the American Medical Association in Philadelphia last month.

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Plans to discontinue practice in Garden City were announced last month by **Dr. Arnold H. Greenhouse**, who has accepted a position on the faculty of the school of medicine at the University of Colorado.

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**Dr. Ray T. Parmley**, Wichita, has been named chairman of the Membership Committee of the American Society of Anesthesiologists.

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New on the staff of Topeka State Hospital is **Dr. Richard E. Bartman**, acting clinical director of the Parsons State Hospital during the past two years.

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**Dr. Alexander Robert Chalian**, Topeka, and **Dr. Louis Barrick Wilson**, Kansas City, became fellows of the American Society of Anesthesiology at its recent meeting in Los Angeles.

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**Dr. Paul H. Nitschke**, formerly in private practice in Prairie City, Oregon, has joined the staff of the Veterans Administration Hospital in Topeka, to specialize in urology. He is a diplomate of the American Board of Urology.

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Since 1900 heart disease has become more than ever a disease of middle and old age, Health Information Foundation says. Today about 70 per cent of all deaths from this disease take place at ages 65 and over, and another 25 per cent between the ages of 45 and 64.

## DEATH NOTICES

WALTER PETER STOLTENBERG, M.D.

Dr. W. P. Stoltenberg, 75, an honorary member of the Edwards County Society, died in the Edwards County Hospital on November 17 after a long illness. He received his medical degree from State University of Iowa College of Medicine in 1905 and began practice in New Liberty, Iowa. In 1908 he moved to Kinsley and remained in practice there until his retirement.

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FRANCIS MARION SHONKWILER, M.D.

A veteran Emporia physician, Dr. F. M. Shonkwiler, 83, died at Newman Memorial Hospital in Emporia on November 24. He had suffered a broken hip in a fall at his home the week before. A graduate of Louisville Medical College, Kentucky, in 1898, Dr. Shonkwiler had lived in Emporia for 30 years and had practiced in El Dorado before that time. He was an honorary member of the Lyon County Society.

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LLEWELLYN MAGELLAN HINSHAW, M.D.

A physician in Bennington since 1904, Dr. L. M. Hinshaw, 82, died at his home on November 28 after an illness of several months. He was an honorary member of the Saline County Society. After graduation from Kansas Medical College in 1905, Dr. Hinshaw began practice in Bennington, where he remained except for a short time spent in Solomon. He was guest of honor at a community celebration in 1952.

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SPENCER NORMAN CHAFFEE, M.D.

Dr. S. N. Chaffee, 85, who had practiced in Dickinson County more than 50 years, died on December 11 at his home in Solomon. Since his retirement in 1954, because of poor health, he had been an honorary member of the Dickinson County Medical Society. He was graduated from the University of Illinois College of Medicine in 1904 and began practice in Morganville. He moved to Talmage in 1905 and to Solomon in 1939. Among his survivors are two sons who are physicians, Dr. Dean Chaffee of Abilene and Dr. Lynn Chaffee of Boston.

## COUNTY SOCIETIES

Dr. John F. Coyle, Coffeyville, was named president of the Montgomery County Medical Society for 1958 at a recent meeting of the group. Serving with him are: Dr. Albert E. Bair, Independence, vice-president; Dr. Kenneth R. Grigsby, Coffeyville, secretary, and Dr. Gerald C. Bates, Independence, treasurer.

Officers for the Dickinson County Society were elected at a meeting held at Hope on November 21: president, Dr. James O. Gilliland, Herington; vice-president, Dr. A. W. Butcher, Abilene; secretary-treasurer, Dr. George C. Steinberger, Abilene.

Members of the Shawnee County Society entertained their wives at a dinner dance at the Topeka County Club on December 4. Dr. W. M. Mills, who received his medical degree 50 years ago, was elected to membership in the 85-50 club.

Dr. Charles S. Davis, Galena, has been elected president of the Cherokee County Society. Other officers are: Dr. Paul H. Grubb, Galena, vice-president; Dr. Richard H. Claiborne, Baxter Springs, secretary-treasurer, and Dr. Gregg B. Athy, Columbus, delegate to the state meeting.

Dr. Eugene Schwartz, Dodge City, was guest speaker at the November meeting of the Iroquois Medical Society, held at the home of Dr. Jack E. Randle, Bucklin.

A meeting of the Cowley County Society was held at the Country Club in Arkansas City on November 21. Dr. Robert P. Holt, Oklahoma City, discussed treatment of deformities in children's feet.

Serving as 1958 officers of the Crawford County Society, as the result of an election held at the Hotel Besse, Pittsburg, in November, are: Dr. Clifford B. Newman, Pittsburg, president; Dr. Jack D. Walker, Girard, vice-president; Dr. Robert W. Friggeri, Girard, secretary-treasurer; Dr. Paul B. Leffler and Dr. Clarence M. Montee, both of Pittsburg, members of the censor committee. Dr. Clarence W. Erickson, Pittsburg, will serve as the group's Blue Shield representative.

"Recent Advances in the Treatment of Acquired Valvular Disease of the Heart" was the subject discussed by Dr. Dwight Harken, associate clinical professor of surgery, Harvard Medical School, before a meeting of the Sedgwick County Society in Wichita on December 3. At an afternoon clinic at St. Francis Hospital, the subject was "Traumatic Injuries of the Chest and Carcinoma of the Lung."

Members of the Labette County Society were guests of the Auxiliary at a dinner at the Parsonian, Parsons, on November 13. Dr. Rolland W. Urie was speaker at a separate meeting of physicians following the dinner and showed a medical film.

Dr. and Mrs. Orlin W. Longwood, Stafford, entertained members of the Stafford County Medical Society and its Auxiliary at a dinner meeting at their home in November.

Members of the Shawnee County Medical Society provided polio shots for \$1.00 each at a clinic in Topeka on December 12. The program, widely acclaimed in Topeka newspapers as a public service project of the society, was called "Polio Dollar Day."

Dr. and Mrs. Clemens M. Rucker entertained members of the Nemaha County Society at a dinner in Sabetha last month, the occasion marking Dr. Rucker's 50th year in the practice of medicine. A film, "Grand Rounds No. 5," was shown by Mr. Del Saunders of the Upjohn Company.

Dr. Laurence S. Nelson, Jr., who completed his term of office as president of the Saline County Society last month, entertained the group at a cocktail party and dinner at the Warren Hotel in Salina on December 12. Dr. Frank T. Cultron is serving as president of the group for 1958.

A quarterly meeting of the Central Kansas Medical Society was held at the City Building in Russell on December 12. Dr. Wu Hao Tu and Dr. Robert Jordan, members of the faculty at the University of Kansas School of Medicine, presented a scientific program.

The annual Christmas Party for members of medical societies in an eight-county area was held at the

Neodesha Legion Hall on December 11. Wives of the physicians were also present for the dinner and program.

Dr. George A. Patton became president of the Atchison County Society as the result of an election held recently. Dr. Ira R. Morrison is vice-president and Dr. Wayne O. Wallace is secretary-treasurer. Dr. Wallace also serves as delegate to the state meeting with Dr. Charles H. Young as alternate.

## BOOK REVIEWS

*The Chronically Ill.* By Joseph Fox, Ph.D. Published by Philosophical Library, Inc., New York. 229 pages. Price \$3.95.

According to the jacket blurb Dr. Fox, whose advanced degrees are in social science, has devoted almost 20 years to the study of the aged and the chronically infirm. The publishers confidently state that the material "is of great interest to the busy physician, the social worker, the hospital administrator and to labor and management." It is possible that the social worker and others may find Dr. Fox's study of great value and interest, but the busy physician will probably not get any startling new facts or ideas from it because he daily faces the problems of chronic illness at a much less superficial level than Dr. Fox does.

It is also unlikely that this book, which "is a sociological approach to the problem" of chronic illness, "will evoke in others a kindred awareness of the problems and the goal that we should all strive for in our struggle to master and conquer the ravages of chronic disease." True, it does take a daring and straightforward stand in favor of viewing the chronically ill as human beings with psychological, social, and economic problems rather than as creatures to be herded into an asylum or put off in some back room. The radical nature of this idea might have surprised physicians in some past era, but one cannot imagine its being any more revolutionary today that would be a sermon against sin.

The book is printed on cheap paper and rather poorly bound. The bibliography will not be of much help to physicians, and the glossary is aimed at a mental age of approximately 12 years.—J.D.R.

*Ear, Nose, and Throat Dysfunctions Due to Deficiencies and Imbalances.* By Sam E. Roberts, M.D. Published by Charles C Thomas, Springfield, Illinois. 323 pages; 57 figures. Price \$8.50.

Throughout his book, Dr. Roberts accentuates the

importance of cellular nutrition and metabolism in diseases and dysfunctions rather than the virulence and toxicity of the micro-organism.

The foreword is by Dr. Morris Fishbein, who states: "Dr. Roberts has wisely recognized that conditions affecting the nose, throat, the sinuses, the nervous system—in fact, any portion of the human body—are in a sense not localized but constitutional disorders . . . and attack on such should not be limited to surgical correction of anatomical errors nor to eliminations of infectious or toxic agents. The attack must be total. His extensive experience using total approach to the control of dysfunctions of the sinuses, Meniere's disease, headaches, allergies, tinnitus, exhaustion, fatigue, and many other conditions has apparently yielded excellent results."

The sinus mucosa and the acoustic labyrinth are two extremely sensitive barometers which register systemic metabolic disorders occurring elsewhere in the body.

The author is certain that deficiencies, and especially imbalances, are the principal causes of the diseases, dysfunctions, and syndromes reported in his book and that they are often precursors of many chronic degenerative diseases. These deficiencies and imbalances are nutritional, electrolytic, hormonal, acid-base, and insulin-sugar. To correct one deficiency or imbalance and disregard others (since they are always multiple), would mean therapeutic inadequacy and lead to disappointing clinical results. Adequate nutrition heads the list of basic therapeutic procedures.

Chapter headings include: The Therapeutic Test, Philosophic and General Discussion, Clinical Observation, Notes on Specific Minerals, Carrel-Lindberg Heart, Antimetabolites, Gonadal Imbalances, Vascular Headaches (an excellent chapter), Insulin-sugar Imbalance, Meniere's Disease, Acoustic Nerve Dysfunction, Hilger's Syndrome, Allergy, Sinus Dysfunction, and Basic Therapy (well outlined).

Among the figures presented are: questionnaires on personal history, diet history, and gynecic history; general instructions for the allergic patient; list of food selection for adequate nutrition with general instructions; table of hidden sugars in foods; glucose tolerance charts and audiograms illustrating therapeutic responses. Case histories and chapter summaries are of interest and value.

The presentation is informal, easy to read, and easy to understand. It already has changed our own family's dietary regime.—R.M.-S.

*The Story of Peptic Ulcer.* By Richard D. Tonkin, M.D., F.R.C.P. Westminster Hospital, London. Published by W. B. Saunders Company, Philadelphia and London. 71 pages. Price \$2.25.



Doctor Tonkin has incorporated into this small book a wealth of scientific material and medical advice written in a delightful manner. It is pleasurable reading for members of the profession and laymen alike and can be read in its entirety in 30 minutes. It would be an excellent guide to the multitude who suffer from peptic ulcer and I believe would give them a better understanding of their disease than would several hours of advice in the consultation room.—C.C.G.

*Fads and Fallacies in the Name of Science.* By Martin Gardner. Published by Dover Publications, Inc., New York City. Paperbound. 363 pages. Price \$1.50.

The subtitle tells the story of the book—"The Curious Theories of Modern Pseudoscientists and the Strange, Amusing and Alarming Cults that Surround Them—A Study in Human Gullibility."

This book is not fiction. It is not written in a popular style. It is not intended to amuse. As we read the book we received the impression that this serious science writer is trying to compile a synopsis of the life and theory of each major cultist. Some receive a scant paragraph while others are dealt with at length.

Perhaps the major problem encountered by this reviewer was that of extreme brevity. The author tried to describe a complex philosophy in three sentences and that cannot be done. The alternative of course would be to expand these 383 pages to many volumes.

The book, then, is almost a dictionary, more accurately, perhaps, an encyclopedia of unscientific theories to which people have subscribed. Only a portion deals with health. Many treat the end of the world, biblical prophecy, racial superiority, life on other planets, sex, divining rods, etc.

Among them are some that are familiar but also to be found here are weird, bizarre beliefs this reviewer had never heard of. Included too are all the medical cults, food faddists, orgonomy, and dianetics. Named are such figures as Brinkley, Koch, W. H. Bates, Macfadden, and many others.

The author is not beating the drum for medicine. He is not fighting for or against any man or any theory. He is pleading for the scientific approach and in this effort exposes those who have ignored that discipline. Some cultists are out-and-out frauds, others sincere but misguided, and still others are in the mad genius class. All are reviewed.

The book is an excellent compilation of data a physician should have at his disposal. The book is recommended, perhaps not to be read continuously as a novel but to be sampled as an encyclopedia for information.—O.E.E.

## ANNOUNCEMENTS

First Oklahoma colloquy on advances in medicine (fluid, electrolyte, and nutritional balance), auditorium, University of Oklahoma School of Medicine, Oklahoma City, February 6-8. Open to all physicians. Registration fee \$25.

Board of Missions of Methodist Church needs 20 doctors in its mission fields in 10 overseas countries. Board now has 42 physicians in Asia, Africa, North and South America with 43 others in training. Information available at 150 Fifth Avenue, New York 11, New York.

May 1 deadline for essays in competition sponsored by Mississippi Valley Medical Society, winner to receive \$100, a gold medal, and a certificate. Any subject of medical or surgical interest acceptable. Information available from Harold Swanberg, M.D., 209 W.C.U. Building, Quincy, Illinois.

Eleventh annual postgraduate course on diseases of the chest, sponsored by American College of Chest Physicians, Warwick Hotel, Philadelphia, March 3-7. Tuition \$75. Write Director, 112 East Chestnut Street, Chicago 11, Illinois.

New York University-Bellevue Medical Center courses in February: congenital heart disease, February 3-5; auscultation of the heart, February 24-26; cardiac roentgenology, February 27-28; dermatology and syphilology, February 17-21; orthopedics in general practice, February 19-21; review in ophthalmology, February 20-22; review in pediatrics, February 17-22; otolaryngology, February 17-21. Tuitions vary. Write Association Dean, 550 First Avenue, New York 16, New York.

Fifty-seventh annual meeting, Medical Library Association, Hotel Kahler, Rochester, Minnesota, June 2-6. Pre-convention activity includes refresher courses. Information available from Mr. Thomas E. Keys, Librarian, Mayo Clinic.

Twelfth annual symposium on fundamental cancer research, University of Texas M.D. Anderson Hospital and Tumor Institute, Houston, March 6-8.

Fifth congress, International Society of Internal Medicine, Philadelphia, April 23-26. First held in U. S. Information from Secretary-General, Dr. Edward R. Loveland, 4200 Pine, Philadelphia 4, Pennsylvania.

Fifteen-minute film, "Professional Education," available from National Foundation for Infantile Paralysis, 301 East 42nd Street, New York 17, New York. Stresses need for cooperation between professional and community groups.

Twenty-sixth annual alumni postgraduate medical convention, College of Medical Evangelists, Hotel Biltmore, Los Angeles, February 25-28, preceded by two-day series of refresher courses at the college. Write for program, 1720 Brooklyn Avenue, Los Angeles.

### New Code Announced

A new revised Code of Ethics for hospitals and hospital administrators has been released by the American Hospital Association and the American College of Hospital Administrators. It supplants a code produced and adopted in 1939 by the two organizations.

The revision, prepared by a joint committee representing both groups, consists of a ten-point statement on hospital ethics and a ten-point statement of principles of conduct for hospital administrators.

According to the introduction to the Statement of Administrative Principles, "The ethical and administrative principles . . . are established to promote the public welfare and to guide governing bodies, administrators, physicians, nurses and all who work in hospitals."

"By following these principles," the introduction states, "the hospital will be better able to perform its functions in a manner that will merit and receive the endorsement and support of the community it serves."

### Hospital Ethics

1. Recognizing that the care of the sick is their first responsibility and a sacred trust, hospitals must at all times strive to provide the best possible care and treatment to all in need of hospitalization.

2. Hospitals, cognizant of their unique role of safeguarding the nation's health, should seek through compassionate and scientific care and health education to extend life, alleviate suffering, and improve the general health of the communities they serve.

3. Hospitals should maintain and promote harmonious relationships within the organization to in-

sure the proper environment for the considerate and successful care and treatment of patients.

4. Hospitals should appreciate and respect individual religious practices and customs of the patient.

5. Hospitals, to the extent possible, should conduct educational projects, stimulate research, and encourage preventive health practices in the community.

6. Hospitals should cooperate with other hospitals, health and welfare agencies, governmental and private, and other recognized organizations interested in promoting the health of the nation.

7. Hospitals in reporting their work to the public should give a factual and objective interpretation of accomplishments and objectives without disparaging the work of other hospitals or related organizations.

8. Hospitals should actively support and encourage every effective method which will ease the financial burdens of illness.

9. Hospitals should be fair, honest, and impartial in all their business relationships.

10. Hospitals should be progressive in politics, personnel practices, and efforts to maintain up-to-date equipment, methods, and standards of performance.

### For Hospital Administrators

The hospital administrator's life is dedicated to the highest possible level of performance in the competent and humane hospital care of the sick, in health education in all its many phases, and in research conducted in the interest of hospitals and their patients. In pursuing these objectives the hospital administrator should be guided by the following principles:

1. He will not use his position or influence for selfish personal advantage or gain and will not disparage the work of his colleagues.

2. As official representative of the hospital's governing body and often the hospital's spokesman in the community, his conduct will at all times be dignified and exemplary. His professional performance will be objective and fair, with the patient's best interest as the ultimate consideration.

3. In his relationships with personnel and staff he will be impartial, tolerant, fair, and interested in all reasonable means of promoting personnel morale and welfare, consistent with the hospital's best interests and ability to provide them.

4. The administrator will encourage, assist, and teach others the principles and practice of hospital administration to the end that future hospital administrators may be more adequately prepared.

5. The administrator will encourage and participate, to the extent possible, in a broad educational program to assure the health workers necessary to the hospital field.

6. He will contribute his interest, support, and leadership toward the general improvement of the

community, with especial emphasis on health education and related causes. In so doing he will attempt to avoid involving his hospital in partisan political issues.

7. In his relationships with the medical staff of the hospital he will support that which is constructive, sound, and in the interests of good hospital professional practice; he will resist and oppose that which is, in his judgment, harmful, destructive, or unwise.

8. The administrator will seek constantly to improve his professional knowledge and skill and will accept counsel and guidance, particularly in fields and subjects with which he is not entirely familiar.

9. Recognizing that his is a position of public trust, he will, within the limitations imposed by good judgment, legal considerations, and his hospital charter respect the rights, privileges, and beliefs of others regardless of race, color, or creed. He will keep confidential whatever he may learn respecting the private affairs or character of patients and their families, physicians, and others with whom he is associated in the hospital. When his administrative duties bring him into conflict with any segment of society or belief, he will deal with the situation with the greatest consideration, courtesy, and respect for the individual that is possible, without ridicule or animosity.

10. He will exemplify the Golden Rule in thinking, action, and conduct.

### "March of Medicine" TV Program

The work of American physicians in remote regions of the world where native populations are largely dependent upon our doctors and medicine for their health and well-being is the television story to be aired coast-to-coast January 23. Entitled "MD International," the hour-long show will be presented at 8 p.m. CST over the full NBC-TV network in color and in black and white. This is part of a joint American Medical Association and Smith, Kline and French Laboratories project to inform the American public of people-to-people activities in the health profession for the promotion of better international understanding.

The telecast reports on doctors' activities in thoracic and general surgery, orthopedics, ophthalmology and general medicine in such far-flung areas as Korea, Hong Kong, Burma, Sarawak, Nepal, India, Lebanon, and Ethiopia. A special March of Medicine team traveled more than 34,000 miles to film these doctors in their unofficial roles as America's "medical diplomats."

Two world-wide figures—Charles Malik, foreign

minister of Lebanon, and Emperor Haile Selassie of Ethiopia—will express their peoples' gratitude for the American medical work being carried on in their countries.

## ABSTRACTS FROM CURRENT LITERATURE

*Diffuse Otitis Externa and Its Effective Treatment.*  
By G. W. Lawson, *Postgraduate Medicine* 22:501  
(Nov.) 1957.

Following a comprehensive discussion of the differential diagnosis and etiologic relationships involved in diffuse otitis externa, the author presents details of an effective method of treatment. He advocates prompt measures to alleviate pain and to control infection, because, he states, "the commonness of pain as the presenting complaint indicates that infection is usually present at the time the majority of patients seek the physician's help." He also points out that: "Although bacteriologic diagnosis is theoretically desirable in every instance, the average patient who comes to a general practitioner because of earache will not readily accept the delay, inconvenience and extra cost."

The author states that in practice, treatment with an agent whose established use is confined to local application is both safe and satisfactory. His best results have been attained with a special liquid preparation which has a physiologic pH of 6.5, contains 3.5 mg. neomycin (as sulfate) and 50 mg. sodium propionate per cc. of alcoholic glycerin vehicle. The spectrum of neomycin includes gram-negative and gram-positive organisms, notably *Pseudomonas bacilli* and hemolytic staphylococci which are the bacteria found most commonly in ear infections. Propionic acid is particularly effective against the fungi which have been reported present in about 25 per cent of these cases.

As a routine measure against pain, the author prescribes aspirin and codeine, or, if necessary, a more potent analgesic. He also advocates local cold applications and avoids hot applications.

Of 713 patients treated successfully by the author's method, 347 required only one office treatment; 237 required two visits; 87, three, and 32, four treatments. The remainder required more than four, but their ear conditions had been complicated by perforated drums and other effects of previous chronic otitis media. However, following application of the medication their ears became free of discharge and improvement in chronic otitis media was noticed.



### Program to Facilitate Research

A six-part program has been proposed by a committee of the National Society for Medical Research to relieve the increasingly serious shortage of cadavers threatening the quality of medical education in the United States.

"A majority of medical colleges report that they are unable to obtain enough bodies to teach student doctors efficiently," Dr. Oliver P. Jones, head of the anatomy department at University of Buffalo Medical School and chairman of the committee, said. "Some schools have been forced to drop such important courses as surgical anatomy."

The committee's program includes:

1. A survey of public opinion toward anatomical studies.
2. A series of conferences with religious leaders, public welfare administrators, undertakers, hospital superintendents, and other persons concerned with the disposition of bodies.
3. A program of education for persons in the health professions.
4. A general public educational program.
5. The drafting of modern laws making bodies available through bequest (in 39 states, a person's body is not his own to give after death).
6. Legal reference service, with standardized forms and procedures for bequeathing a body to a medical school.

In the opinion survey, a depth-interview study that will discover underlying sentiments has been proposed. Results of the study will provide a foundation for the other five elements of the program.

Dr. Jones explained that "Changing times, plus outmoded laws and ancient prejudices, mean increasing trouble for the anatomy departments of many of America's medical colleges."

The University of Buffalo alone operated its anatomy department last year with 23 cadavers short of adequate instruction. It was not able to give anatomical instruction to nurses and people in the public health fields. The department used 37 bodies to instruct 68 dental and 80 medical students. "This means four students to each body," Dr. Jones explained.

"If we have to assign a larger number of students to each cadaver, as we will if the shortage continues, students will not get proper experience in dissection. And they will be inadequately prepared when they subsequently have to operate on living patients."

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More than 96 per cent of vehicles involved in fatal accidents on U. S. highways in 1956 were in apparently good condition.

### Home to KUMC Dean

A spacious English-style home in the Mission Hills section of Kansas City, at 5800 Mission Drive, was presented to the University of Kansas last month by Mr. and Mrs. Kenneth A. Spencer for use as a residence for the dean of the School of Medicine. Mr. Spencer is president of the Spencer Chemical Company, and both he and Mrs. Spencer attended the University of Kansas.

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### A.M.E.F. State Chairmen to Meet

The American Medical Education Foundation's 1958 fund raising drive for the nation's medical schools will be officially launched January 25-26 at a meeting for state chairmen. This seventh annual conference will be held at the Drake Hotel, Chicago.

As a departure from the usual practice, a get-together dinner will be held Saturday evening, January 25, and Sunday sessions will be devoted entirely to a discussion of ideas for the further development of A.M.E.F. campaigns during the year. New work kits will be distributed to state chairmen along with samples of materials used by various state committees. A.M.E.F. will pay the expenses of one representative from each state, although any physicians interested in this project are welcome to attend.

In addition, A.M.E.F. reports that Indiana and South Carolina physicians have endorsed a dues increase to help support medical education. Other states which already have adopted a special dues program are Arizona, California, Idaho, Illinois, Nevada, New Jersey, and Utah.

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### Institutes on Nomenclature

Plans for sponsorship of two institutes on nomenclature have been announced by the American Medical Association as the result of the popularity of previous courses. The first institute in 1958 will be conducted March 31 to April 2 in Tulsa, and the second will be held in July, on dates to be announced, in Boston. The sessions are planned as a service to medical record librarians and others working with the Standard Nomenclature of Diseases and Operations in hospitals, clinics, or doctors' offices. Queries on the courses should be sent to A.M.A. headquarters.

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Drive as if you know the facts—  
The highway's full of maniacs!

He stopped to yield the right-of-way  
And lived to drive another day.  
—*Safety Slogans*

# *The* JOURNAL *of the* KANSAS MEDICAL SOCIETY

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## Maternal Deaths

### *An Outline of a Study in Kansas as It Relates to Improvement in Mortality Rates*

DAVID E. GRAY, M.D., *Topeka*

For a number of years, the Maternal and Child Health Division of the Kansas State Board of Health and the Committee on Maternal Welfare of the Kansas Medical Society have cooperated in studying maternal deaths in this state. Interest has increased and with it has come the necessity for more complete study of these cases. This necessity has two components. First, the only practical value of such a study lies in the informative and educational function of the results, which obviously makes the accuracy and thoroughness of such investigations of prime importance. Second, the relative infrequency of maternal deaths requires that each be scrutinized closely in order properly to assign responsibility and preventability.

The present plan utilizes a comprehensive and rather involved questionnaire which makes even the most cooperative physician cringe. Recognizing that voluntary response to these forms would be minimal, the two interested groups and the Kansas State Obstetrical Society have divided the state into districts, roughly based on the councilor districts, in each of which an interested physician is designated to assist the physician attending a maternal death in completing the form.

The fact of a maternal death usually reaches the Board of Health through vital statistics channels although the individual hospitals and physicians have been encouraged to report such cases directly in order to avoid the obvious delay of certificate processing. The chairman of the Maternal Welfare Committee then notifies the consultant for the district to contact

the attending physician and notifies the latter that he will be contacted. With all available records, the two individuals complete the questionnaire and the consultant summarizes the information, including his opinion on the preventability, and forwards the case to the committee. Periodically, these cases are presented in anonymous form to the committee for discussion and assignment of preventability and responsibility.

The educational value of the study has been limited so far, the members of the committee being the chief beneficiaries. It is contemplated, however, that as the program progresses, wider dissemination will be accomplished by direct communication of the results of the discussion to the physician involved, to the

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**It cannot be too strongly emphasized that, as one reviews maternal death records with all the wisdom of retrospection, the initial episode or indication of a condition which eventually culminates in a patient's death is usually some minor feature overlooked, ignored, or discounted until too late. Our problems will be solved when we achieve, to paraphrase Reinhold Niebuhr's prayer, the courage to act when we should, the strength not to act when we should not, and the wisdom to know one from the other.**

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obstetric group by presentation at meetings of the Kansas State Obstetrical Society, and to the profession generally by publication of abstracts of certain cases in the JOURNAL OF THE KANSAS MEDICAL SOCIETY. The anonymity will, of course, be retained in the latter instances.

It would be improper to imply that the plan is working as smoothly and completely in fact as it sounds on paper, but a start has been made. It would also be improper to imply that this presentation is in any way a report of the findings of the study. It is, rather, an individual attempt to look at the maternal death situation in Kansas as it has been and is now with the hope that each effort to bring the problems to the attention of Kansas physicians will contribute to the improvement of obstetric practice in Kansas.

Definitions

In order to clarify any discussion, certain definitions must be established. The generally accepted definition of a maternal death is the death of a woman during or within 90 days of pregnancy, regardless of cause, or later if a relationship between the pregnancy and ultimate cause of death can be shown. The immediate reaction to this is that it is manifestly unfair to assign responsibility for the death to the obstetric experience if there is only casual association. There is, however, no other way to assure that all possible obstetric deaths will be studied, and investigations will, of course, assign the case to its proper place.

A direct obstetric death is one resulting "from complications of the pregnancy itself, from intervention elected or required by the pregnancy or resulting from the chain of events initiated by the complication or intervention."\* An indirect obstetric death is one "resulting from disease existing before or developing during the pregnancy, not being a direct effect of the pregnancy but being obviously aggravated by the physiologic effect of the pregnancy."\* The remainder represent the non-related deaths: those occurring within the specified time but not being related to the pregnancy, its complications, or management.

After the basic classification of a maternal death, further consideration involves the concept of preventability. The determination of preventability necessitates investigation of all details of the individual cases if the study is to have any value. It is the essence of a maternal death study since it represents the application of the theoretical ideal to practical function. Non-preventability of an obstetric death can be determined only if the death occurred in spite of the coexistence of three ideal conceptions: a physician

possessing all the available knowledge relating to the factors involved in the process, a high degree of technical proficiency of the physician based on experience, and the availability of all the facilities of a well-organized and well-equipped hospital.

Most obstetric deaths will obviously be classed as preventable, but it must be emphasized that such classification is not tantamount to censure. The conscientious and attentive obstetrician will have nothing to fear from investigation of a case in his care.

Material

There has been a marked decrease in maternal deaths in Kansas and in the nation generally in the last 20 years. Table I shows the remarkable parallel between state and national figures since 1940. From rates of 35.5 and 37.6 deaths per 10,000 live births respectively in 1940, we have attained rates of 5.1 in Kansas in 1956 and 4.7 throughout the country in 1955 (the latest year for which figures are complete). The fact that the national figure is better than the state figure is not evidence of lower quality of obstetric practice in Kansas but the result of two other factors: the death rate in Kansas is so low that only a case or two added or taken away alter the statistical terms considerably and several cases have been added to the Kansas total recently because their obstetric character has just been revealed (a condition which would certainly apply to national figures were it possible ever to gather all such cases together). Because of this fallibility of statistics, this presentation makes no pretense of more than the most general observations.

There is one obvious factor in the gratifying decrease in maternal deaths during this time: the reduction in deaths due to infectious conditions. In order to determine whether other areas of maternal care have contributed to this improved situation, the

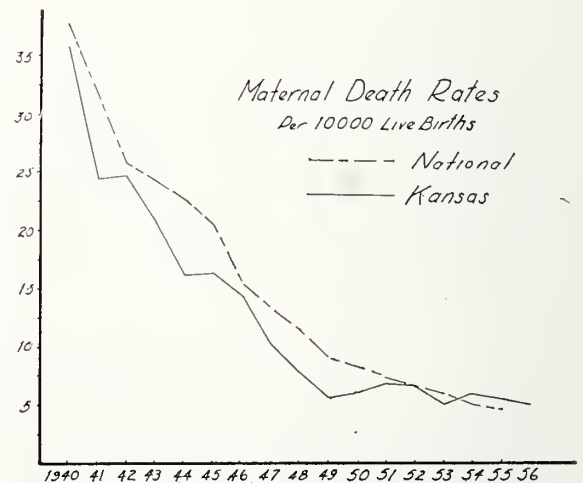


Table I

\* A Guide for Maternal Death Studies—Committee on Maternal and Child Care of the Council on Medical Service, American Medical Association, 1957.



MATERNAL DEATHS *by* CLASSIFICATION

	1939	1952	1953	1954	1955	1956
TOTAL	75	34	26	33	30	27
HEMORRHAGE	18 24%	8 23.5%	9 34.6%	13 39.4%	9 30%	6 22.2%
INFECTION	30 <sup>a</sup> 40%	2 5.9%	0	3 9.1%	4 13.3%	1 3.7%
TOXEMIA	16 21.3%	10 29.4%	6 23.1%	3 9.1%	3 10%	4 14.8%
MISCELLANEOUS	11 13.7%	14 41.2%	11 42.3%	14 42.4%	14 44.8%	16 59.2%

Table II

deaths during the year 1939 and the years 1952 through 1956 were studied. Thus, two distinctly different periods and several years within the improved period are compared.

Table II shows the classification of deaths according to general groups: hemorrhage, infection, toxemia, and the ever-necessary miscellaneous. The total of 75 deaths in 1939 and 27 in 1956 takes on added significance when it is noted that the total live births in 1939 were 29,115 and in 1956 were 53,027 to make respective death rates of 25.76 and 5.1.

Although total deaths from hemorrhage have decreased, the percentage relationship remains consistent with the 1939 figure. Infection deaths have been reduced—in one year at least, 1953, reaching the ideal of none. Deaths from toxemia have shown a steady decline in recent years, representing a distinct obstetric improvement. Those deaths assigned to the miscellaneous group have remained the same in absolute number, resulting in a strong percentage increase. The term miscellaneous is not synonymous with non-obstetric. The majority of these cases represent ob-

## HEMORRHAGE

	1939	1952	1953	1954	1955	1956
ABRUPTIO	1		3	3		
ECTOPIC	3	3		3	1	
RUPTURE	2	2	3	2	2	2
CERV. LACERATION		1	1	1		
UTERINE ATONY	11	2	1		2	4
ABORTION (SPONT)	1				2	
" (CRIM.)					1	
RUPT. ARTERY				1		
PLACENTA PREVIA			1			
UNSPECIFIED				3	1	

Table III

stetric complications which contributed to death or which the patient survived only to succumb to some other condition.

The breakdown of hemorrhage deaths in Table III shows a preponderance of cases of uterine atony in 1939. It should be noted that this may represent a degree of inaccuracy since some cases have been arbitrarily assigned to this group in the absence of sufficient information in the record to justify other classification. Rupture of the uterus shows a distressing persistence. The histories too often indicate delay in diagnosis and action and, more regrettably, the injudicious use of oxytocics before the second stage of labor. The tendency to underestimate blood loss is indicated by the occurrence of deaths attributable to bleeding from uterine atony in recent years. There is no substitute for blood in the treatment of hemorrhage and no substitute for the availability of blood in the management of obstetrics.

## INFECTION

	1939	1952	1953	1954	1955	1956
POSTPARTAL	17	1		1		1
CRIM. ABORTION	13	1		2	3	
ECTOPIC					1	

Table IV

The grouping of infection deaths in Table IV is more interesting if we note that in the recent five-year period the total deaths were only one-third of those in the one year of 1939. Further, half as many girls died from infection following criminal abortion in that year as from all causes in 1956. It must be admitted, however, that the victory is more the bacteriologist's and the pharmacologist's than the obstetrician's.

The toxemias of pregnancy represent an area in which the effect of good obstetric care should be discernible. In Table V, it is evident that there has been an absolute as well as relative improvement, and it seems reasonable to assign some of the credit to the success of the obstetrician's efforts to educate and manage his patients. Again, the actual cases are so few in number that one cannot point to statistically significant findings.

A greater diversity of diagnoses on death certificates has necessitated the expansion of the miscellaneous group and a closer look at the individual cases in order to evaluate the several factors involved.

## TOXEMIA

CONVULSIVE	8	4	2	2	1	1
NON-CONVULSIVE	8	6	4	1	2	3

Table V

In 1939, the classification of eight cases as nonobstetrical cannot be effectively contested as there is no more information available, but it is probable that some of these would have been called indirect obstetric deaths today. The physician who is placed on the defensive by the death of an obstetric patient has a feeling that some of the onus can be removed by denying the obstetric relationship. This brings out the point that one of the prime objectives of a maternal mortality study should be the development of an attitude of interest rather than rejection by the physicians through their realization that it is an educational rather than punitive project.

The following comments refer to the subdivisions indicated in Table VI:

*Cardiovascular:* In 1952, one of the cerebrovascular deaths was associated with nephritis, malignant hypertension, and toxemia. The other occurred in an otherwise normal pregnancy while the patient was straining at stool. In 1956, three cases represented cerebral hemorrhage, one a rupture of a cerebral aneurysm, and two were emboli, one of which was air.

One of the cases of pulmonary embolus in 1956

is particularly interesting in that death was due to multiple small emboli from pelvic thrombophlebitis which followed the eminently successful management of severe postpartum hemorrhage from a cervical laceration. The case of coronary thrombosis in the same year occurred in a patient who had nephritis and experienced a postpartum hemorrhage.

Transfusion reaction deaths are the more regrettable because they are undeniably due to some degree of human error. What these deaths represent in relation to the total number of transfusions given, we cannot say, but we can gain some comfort from the realization that a significant number of patients have survived because of the effective use of blood.

The patient who died from ventricular arrest had had ventricular tachycardia of 18 months' duration and had been advised against becoming pregnant.

*Respiratory:* In 1953, one case of pulmonary edema followed intestinal obstruction secondary to necrosis of the small bowel due to a sponge which was left in the abdomen at cesarean section. Another occurred in a case of chronic hypertension with toxemia. The case in 1954 was associated with cardiac failure after cesarean section.

The case of pneumonia was viral in etiology, occurring in a woman five-months pregnant who was recovering from a ruptured appendix. The case of atelectasis occurred suddenly while the patient was asleep, autopsy also disclosing a right ventricle thrombosis.

*Renal:* The patient who died from lower nephron nephrosis had a severe postpartum hemorrhage necessitating hysterectomy. She received 41 pints of blood in the first 36 hours. Renal effect appeared on the eighth day, and she died on the 16th day. The other cases in this group were included because they did not qualify as toxemias.

*Digestive:* The case of hepatitis followed premature labor with placenta accreta and shock. Eclampsia was given as an associated condition in the case of appendicitis, but there was no evidence that the convulsions were specifically eclamptic in character.

It is to be expected that diabetic patients would show other pathology. Of those in 1952, one is noted as having chronic myocarditis with decompensation. The pregnancy actually terminated eight months prior to death, but the case was included because of the belief that the pregnancy contributed to the deterioration of the patient. The other case in 1952 showed chronic nephritis as well. The 1953 case was associated with nephritis, and the 1956 case died in diabetic coma.

*Toxic:* Cardiovascular collapse and death followed quickly after the administration of Demerol and scopolamine in labor to account for the drug reaction. The same etiology might be applied to the anesthetic

MISCELLANEOUS

	1939	1952	1953	1954	1955	1956
CARDIO-VASCULAR						
Cerebro-vascular		2			1	6
Pulmonary embolism		5	2	1		2
Coronary thrombosis				1		1
Transfusion			1		2	
C-V collapse				1		
Rheumatic heart disease						1
Ventricular arrest						1
RESPIRATORY						
Pulmonary edema			2	1		
Aspiration				2		3
Pneumonia			1			
Atelectasis		1				
RENAL						
Chronic renal insufflt				3		
Lower nephron neph			1			
Acute glomerulonephritis					3	
DIGESTIVE						
Acute yellow atrophy		1				
Hepatitis				1		
Diabetes		2	1			1
Hypoparathyroid	1					
Appendicitis						1
TOXIC						
Drug reaction				1		
Quinine poisoning					1	
Anesthesia			1			
INFECTIOUS						
Polio			1			
Syphilis					1	
Tuberculosis						
Dyschosis	1					
Adrenal failure		1				
Over peral abortion						
Non-obstetrical	8					
Unknown		1		2	3	

Table VI

death inasmuch as death followed the administration of spinal anesthetic. Although quinine poisoning was listed as the cause of death in one case, it should be noted that the patient actually had a pelvic infection with multiple pulmonary infarcts.

Of the unclassified group, the death attributed to adrenal failure occurred in a patient who went into shock following the evacuation of a mole and failed to respond to general measures. Autopsy revealed extensive degeneration of the adrenal glands, liver, and kidneys. The adrenal condition was thought to be primary, the only explanation offered being that the patient was in an extremely poor state of nutrition. One of the unknown cases suggested embolism because death was sudden while the patient was on the bedpan, but autopsy failed to confirm this or disclose other cause. Two cases were undoubtedly secondary to criminal abortion, the patients dying unattended and becoming coroners' cases, autopsies indicating pelvic instrumentation and infection. No official classification is recorded, however. Two cases are reported as unknown because certificate information was inadequate to permit classification and requests for further information were not answered.

#### Comment

The reduction of the maternal death rate to its present level evokes several points of speculation. The increasing number of deaths in the miscel-

laneous category suggests either that closer scrutiny of these cases warrants their exclusion from the direct obstetric group or that generally improved care is bringing these patients through obstetric crises but failing to carry them over other complications. It indicates the need for more careful evaluation of associated conditions with possible revision of some of our ideas regarding the advisability of incurring or continuing pregnancies. Certainly the obstetrician will have to become a more astute judge of nonobstetric conditions and complications.

It seems unlikely that the dramatic reduction in deaths in the infectious category can be repeated in any other group. Rather, continued reduction of the maternal death rate will come from improvement in the specific handling of individual cases. It should be noted particularly that the dividing line between success and failure in the management of obstetric complications is often a fine one in which the physician's efforts are not always the deciding factor. We must consider also that many patients survive their obstetric episodes and consequently do not appear as mortality statistics although their care may not have been as good as that received by some who died. In short, we must continually recognize that the greatest hazard in pregnancy is its normalcy.

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## Safety Resolutions for Drivers

- ★ Come to a complete stop at stop signs.
- ★ Follow other vehicles at a safe distance.
- ★ Don't drive or walk in traffic after drinking.
- ★ Stay alert. Don't allow preoccupation with other concerns to divert your attention.
- ★ Slow down in bad weather and adjust your driving to conditions at all times.
- ★ Dim your lights on the highway even though an oncoming driver fails to dim his. Look at right shoulder of highway to keep control.
- ★ Yield the right-of-way to pedestrians in cross-walks. Do not pass a car that has stopped to permit a pedestrian to cross.
- ★ Stay on your own side of the road at intersections, grade crossings, no passing zones, and on hills and curves.



# Diabetes Mellitus

## *Screening Blood Sugar Tests in Kansas, 1956 and 1957*

ROBERT H. RIEDEL, M.D., and VIRGINIA PENCE, M.P.H., *Topeka*

In November of 1957, in at least four counties in Kansas, local groups such as the medical profession and official and voluntary health agencies were jointly seeking ways and means of conducting county-wide diabetes screening programs.

In anticipation of a continued interest by professional and lay groups in this public health activity, we believe it proper to review here our limited experience with diabetes screening in Kansas and comment upon some of the accepted principles for conducting diabetes screening tests. This is not a careful report of an exhaustive survey of the literature on the subject. It is rather an attempt to keep our thoughts on the immediate problem in Kansas, but keeping in mind also some of the information and knowledge available from experience with screening tests of all kinds in other parts of the nation. Tentative generalizations are based on rather limited but suggestive data, information, and observations.

Community diabetes programs are relatively new. There are as yet no well-organized programs in Kansas. Whatever the service a diabetes program may offer the community, the beginning of service must be the finding of hitherto unknown cases and the finding of delinquent cases and their return to adequate and approved medical care.

Probably the earliest diabetes screening tests in Kansas were reported in the December, 1954, issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY as follows: "Diabetes detection drives were sponsored by three county societies, Atchison, Lyon, and Pratt, during 'Diabetes Week,' November 14-20. In Atchison County, free tablets for testing were provided through local drugstores. In Lyon and Pratt Counties, physicians examined specimens from grade school students and from adults who asked for the service."

Records were not kept, nor was there any follow-up in these early projects to determine their success and value from the standpoint of public health. These pioneer projects did, however, stimulate thought and imagination concerning diabetes as a health problem and led to some fairly well-organized screening efforts. At the Atchison County Fair and the Kansas

Free Fair at Topeka in the late summer of 1956, and again at the Free Fair in 1957, diabetes screening programs were carried out by the Kansas State Board of Health in cooperation with the local medical societies and the local health departments. Finally, in conjunction with the photofluorographic survey for chest pathology in Barton County, a similar program was carried out in October of 1957.

Diabetes mellitus was in 1954 the eighth leading cause of death, with a rate of 15.4 per 100,000 population, in the United States. In Kansas in 1954 diabetes was the ninth leading cause of death with a rate of 17.0. In 1955 and in 1956 it was eighth with a rate of 14.5 and 15.4 respectively. It is estimated that more than 2 million people in the United States now have

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**Results of approximately 11,000 diabetes screening blood sugar tests in four Kansas counties in 1956 and 1957 indicate that expanding the program to include all the state would be a beneficial public health project. The cost of testing is not prohibitive, and the pilot studies proved acceptable to the medical profession, to the communities involved, and to the individuals tested.**

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diabetes, and approximately one-half of these cases have not yet been diagnosed. By the same estimate, Kansas would have more than 30,000 cases, of which one-half or 15,000 cases have not yet been diagnosed. Any disease which directly affects approximately 13 of every 1,000 people is a significant public health problem.

Diabetes mellitus has been defined as: "a complex metabolic disease, the trait apparently transmitted as a mendelian recessive characteristic, in which the ability to oxidize carbohydrate is faulty, due to diminished production or effectiveness of insulin secreted by the beta cells of the islands of Langerhans of the pancreas. The disease is functionally related to conditions in the liver and the endocrine glands, and is associated with altered protein and fat metabolism." Although found most frequently in persons over 40 years of age who are obese and have a family history

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From the Kansas State Board of Health. Dr. Riedel is director of the Division of Geriatrics and Chronic Diseases. Miss Pence is a Community Health Education Consultant.

of diabetes, the disease is not uncommon in children.

There is sufficient scientific knowledge about diabetes to permit the medical, public health, social welfare, and other service resources of a community to prevent premature disability and death from diabetes and to aid the diabetic in living a more nearly normal life.

Although the screening projects thus far completed in Kansas were of an experimental nature, the manner in which they were conducted was based upon reports of the experience and results of similar projects in other parts of the nation. This experience indicated that the success of any diabetes screening project is determined by several factors: yield, acceptability, and cost.

**Yield:** This is: (1) the number of previously unknown and subsequently verified cases of diabetes discovered among the population group tested; (2) the number of previously unrecognized diabetics who are benefited by referral to medical care as a result of the screening program; (3) the number of persons with previously known diabetes who are returned to medical supervision as a result of the screening procedure, and (4) the number of individuals who believe they have diabetes, have a positive screening test, but are found not to have the disease by subsequent diagnostic examination. Yield is the most realistic measure of the success of a screening project. Yield depends upon the *prevalence* of diabetes in a community, the *reliability* of the screening test, and the *validity* of the test. Prevalence is the number of cases of a disease existing for a given population for a given time. Reliability is the extent to which a test may be reproduced by a technician of average training. Validity reflects the frequency of confirmation of the test by accepted diagnostic procedure.

**Acceptability:** This relates to acceptance of the project by the individual taking the test, by the local medical group, and by the community.

**Cost:** This factor determines whether a community can afford a valid test in carrying out a screening project.

The State Board of Health staff was first chiefly concerned with the acceptance of a screening project in a community. Acceptance could to a certain extent be assumed because the request for assistance in carrying out the screening projects came from reliable leaders interested in the health of the community, usually members or groups of the medical profession and the health department. Requests for the screening projects were usually directed to a member of the State Board of Health staff, a health educator who was in the community assisting with community organization in the interest of some specific public health problem other than diabetes or better general health for the community. The health educator, upon learning of the

interest of the community in a diabetes screening project, took immediate steps to assure that the project would be accepted by consulting with local leaders in the medical groups, with the health department, with civic leaders, and with voluntary health groups.

We believed that with a valid and reliable test the yield would be satisfactory because of the prevalence of diabetes in Kansas, as indicated by mortality statistics and the opinion of local physicians that the prevalence of diabetes is high, that there were many unknown cases, and that many known cases were not under medical care.

We believed that we had a valid and reliable test. We chose the Wilkerson and Heftman method, which is a true glucose determination. This test is performed on 0.1 cc. of finger tip blood using the New Hewson Clinitron, an automatic machine. A screening level of 160 mg. per cent was used in all projects. The reliability of this test depends chiefly upon the avoidance of pipetting error, keeping the tablet dispensing mechanism clean, keeping the reagent tablets free of moisture, keeping the moderately complicated machine in proper mechanical adjustment, and keeping glassware clean.

A blood test was chosen for screening because blood tests have greater validity and reliability than urine tests. Experience elsewhere has shown that roughly one-half of previously unknown diabetics found through screening with a blood test were missed by a urine test performed at the same time.

The cost of each screening project was only roughly predetermined to assure that materials and personnel would be available for the project. Equipment, materials, and personnel were provided or costs assumed in varying amounts, for each project, by the State Board of Health, the United States Public Health Service, local health departments, and local medical societies. From our experience thus far we have estimated that total costs per person screened, in a permanent, statewide, well-organized program with adequate equipment and personnel, would be from 25 to 50 cents, depending upon what services are performed. Elsewhere it has been estimated that the total cost of a hypothetical diabetes casefinding project, covering 10,000 persons a year, using the Clinitron, and retesting by a three-hour glucose tolerance test, would be 83 cents per person screened.

The Clinitron when operated at full capacity will complete 120 tests per hour. The cost of technical personnel for operating the machine and obtaining specimens rises sharply per screenee tested if the flow of candidates for the test is not constant and in sufficient numbers to operate the machine at full capacity. On the other hand, technical personnel taking specimens can work beyond the capacity of the machine, if candidates are available, since when 0.1 ml. of blood is

TABLE 1  
DIABETES MELLITUS  
Results of Screening Tests

<i>Locality and Date of Screening</i>	<i>Atchison County Aug. 1956</i>	<i>Topeka Free Fair Sept. 1956</i>	<i>Topeka Free Fair Sept. 1957</i>	<i>Barton County Oct. 1957</i>
Number Tested .....	855	2407	2825	5162
Number Positive .....	58	132	202	130
Per Cent Positive .....	6.8	5.5	7.1	2.5
Number of Positives Claim- ing No History of Dia- betes .....	46	94	145	75

pipetted directly into 5 ml. of distilled water in the Clinitron tube, the sugar level will remain constant for four hours. Thus, 10,000 tests performed on a mass basis in a few days would assure that there would be little or no time wasted waiting for screenees, whereas in a project operated for a short period at weekly or monthly intervals over a year there would be more likelihood of periods when there would be no one waiting for the test.

Retesting of positive screenees with a sugar tolerance test has been included in some diabetes screening projects. This obviously eliminates many false positives on persons who would be needlessly referred to a physician for diagnostic procedures. We believe, however, that the sugar tolerance test is not a diagnostic test unless it is considered along with all the other evidence and knowledge which only the patient's private physician would be expected to have or obtain to diagnose or rule out diabetes.

Approximately 11,000 persons were screened in the four projects. Available results are indicated in the accompanying tables.

The populations screened and the circumstances under which they were screened were not entirely the same in each community.

The tests were performed at a county fair in Atchison County. Atchison County Health Department personnel available for follow-up of positive screenees consisted of three full-time public health nurses. The relatively high number of persons who tested positive in which there was no final disposition is attributed to the fact that their residence was outside of Atchison County, and in some cases outside of Kansas. The east border of Atchison County is separated from Buchanan County and St. Joseph, Missouri, by the Missouri River. At the Atchison County Fair health interest was centered almost entirely on the diabetes problem. There were no other screening tests or health exhibits. There was little publicity before the fair opened.

In all projects an attempt was made to test only individuals more than 35 years of age, but some younger persons were included in the screening. The Barton County project was conducted in conjunction with the regular photofluorographic screening for chest pathology which limits persons screened to those above 14 years of age. High school students as a group were, however, not included in those screened for diabetes. There were two full-time health nurses available for follow-up of screenees in Barton County.

TABLE 2  
DIABETES MELLITUS  
Follow-up of Screenees With Positive Tests

<i>Locality and Date of Screening</i>	<i>Atchison County Aug. 1956</i>	<i>Topeka Free Fair Sept. 1956</i>	<i>Topeka Free Fair Sept. 1957</i>	<i>Barton County Oct. 1957</i>
Number Follow-up Completed	20	71	(Incomplete)	(Incomplete)
Number of New Cases Dis- covered .....	2	19	(Incomplete)	(Incomplete)
Number "Lapsed" Previously Known Diabetics Returned to Medical Care .....	2	8	(Incomplete)	(Incomplete)
Number Follow-up Incomplete	26	23	(Incomplete)	(Incomplete)



At the Topeka Free (state) Fair in 1956, tests were done in the health exhibit quarters, among numerous other health exhibits, on the second floor of the grandstand building. Screening for chest pathology was done in a mobile unit parked outside the building near the entrance to the health exhibit. There was no publicity concerning the diabetes screening tests prior to the fair, but there were some newspaper stories during Fair Week. Topeka has a well-organized, full-time health department.

At the Topeka Fair in 1957, circumstances were the same as in 1956 except that there was more publicity for the diabetes tests before and during the fair.

A case of diabetes is not really found until it is diagnosed. To be successful a screening project must, therefore, include provisions for referral for diagnosis and follow-up of every screenee with a positive blood test. An attempt should also be made to assure that any screenee, assumed to have been diagnosed as having diabetes in the past, be referred to his physician regardless of the results of his screening test. Every physician in a community should have complete knowledge and acceptance of the screening project so that he reacts favorably to referral of screenees and responds to requests for information on final disposition of screenees. Information about proposed projects should reach every physician through every communication medium available to the medical society and the health department. Only minor confusion and criticism by physicians, of the Kansas projects, occurred when physicians in a county other than the one in which screening was done, encountered referred screenees, unaware that this relatively new public health screening activity was being carried out in Kansas. Justifiably, these physicians had some questions about the circumstances under which their patient received the blood sugar test. Given this information they accepted, in most cases, the screening program and were cooperative in supporting the program.

The validity of a test is determined by two factors known as sensitivity and specificity. Sensitivity is expressed as the percentage of true diabetics rated as positive by a given test. Specificity is expressed as the percentage of true non-diabetics rated as negative by a given test. A high screening level will discover only the more severe cases of diabetes and will yield few false positives. A low screening level will result in more false positives but will detect a greater number of early and milder cases of the disease.

In spite of the fact that at least one-third of the 132 positive tests in the Topeka project for 1956 appear in the final disposition to have been false positives, no complaints from physicians or screenees that they were annoyed by what would appear to be an

unnecessary costly and anxiety-causing procedure have come to our attention. Apparently patients are not annoyed. They are sufficiently interested in their general health to realize that extensive procedures required to diagnose or rule out diabetes in some cases include a general history and physical examination covering the general status of their health which by present day health standards is often long past due. Any condition other than diabetes which is found makes the procedure of value to the patient as well as the reassurance inherent in a failure to diagnose diabetes or to find any other disease or condition which necessitates immediate medical attention.

This suggests an argument against intensive screening programs to find a single disease and in favor of the multiphasic screening type of program. In the latter there is less opportunity for the individual to dwell with anxiety and fear on one condition of health all out of proportion to the importance of the total individual and general health.

False positives may not be frowned upon as a complete nuisance by physicians for another reason. Knowing that diabetes is a complex metabolic disturbance and that research has not yet solved its riddle, there is a "lurking suspicion" by some physicians that the individual who under varying circumstances occasionally shows an excess of blood sugar, but who has no other signs or symptoms of diabetes, is a prime suspect for developing evident diabetes. Many "false positives" may be early evidence of a developing diabetes, or of a mild type of diabetes which will never become completely manifest.

The false negative test can be a source of annoyance to the physician and his patient if each does not understand that the screening test does not diagnose or rule out diabetes. Everyone has glucose in his bloodstream. The amount varies from day to day and from hour to hour. Blood testing for diabetes can only establish relatively normal and relatively abnormal amounts of glucose in the bloodstream at a given time. Individuals with "mild" diabetes or diabetics under control by diet or insulin will at times have glucose in their bloodstream in amounts below the screening level of a test. This does not mean they do not have diabetes. It is the responsibility of the physician and the public health profession to advise or educate diabetics in these matters. Fortunately, most diabetics have been so advised and do not discredit their physicians or the screening program if they should have a negative screening test after their physicians have definitely advised them that they do have diabetes.

In determining the value of this type of project we must consider benefits derived in the nature of services and education, both for the public and the medical profession. Such services might be expected to include:

1. Calling the attention of the public and the medical profession to an important public health problem
2. Finding early and unknown cases of diabetes and getting them under medical care
3. Returning "lapsed" cases to medical supervision and care
4. Maintaining the confidence of the public in the ability and willingness of the medical profession to cope with this important public health problem
5. Stimulation of continued research directed toward clarification of etiology, prevention, and control.

### Summary

Approximately 11,000 diabetes screening blood sugar tests have been performed by the State Board of Health in cooperation with the local medical profession and the health department in four experimental projects in three counties of Kansas during 1956 and 1957.

It appears that diabetes screening as performed in these projects is acceptable to the individual, to the medical profession, and to the community.

Although incomplete, the results of these screenings as expressed in yield suggest that the projects were successful.

The cost of screening for diabetes does not appear to be prohibitive.

Total experience suggests that diabetes screening as a standard public health procedure in Kansas, as a single screening test, or in conjunction with screening

for other diseases or conditions, is feasible and should be encouraged as a cooperative activity of the state and local health departments, the medical profession, and local communities.

Administration of the program and the mechanics of conducting the screening projects might well be continued in the same manner as was used in experimental projects. Success of the procedure would appear to depend upon good community organization, an adequate full-time team of technical personnel to administer the tests, and adequate local provisions for follow-up of positive screenees to assure referral for adequate and approved diagnosis and medical care.

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## The Night Record—1956

The National Safety Council estimates the mileage death rate was three times as great at night as in daylight.

55 per cent of the traffic deaths were due to night accidents, although less driving was done at night than in the day.

62 per cent of the urban traffic deaths

and

53 per cent of the rural traffic deaths occurred between sunset and sunrise.

19 per cent of ALL fatal traffic accidents occurred between 5:00 and 8:00 p.m.

# Diaphragmatic Hernia

## *—Traumatic, with Herniation of Tumor of Liver*

JOHN G. SHELLITO, M.D., and WAYNE C. BARTLETT, M.D., Wichita

In 1925 in the *Journal of the American Medical Association*, Hedblom<sup>6</sup> reported 378 patients who had diaphragmatic hernias. Nineteen were from the Mayo Clinic and 359 were from the literature. Hedblom pointed out that in two-thirds of the reported civilian patients operated upon, the hernias were due to a penetrating wound or rupture of the diaphragm due to a sudden increase in intra-abdominal pressure. One-sixth of the patients had congenital lesions, and one-sixth had acquired lesions. Hedblom found that in 90 per cent of patients operated upon there was no sac, or eventration of the diaphragm, as is often described.

Traumatic right diaphragmatic hernia with herniation of the liver is a rare occurrence. In 1934, Hedblom<sup>6</sup> reported 857 cases of diaphragmatic hernia. The liver was found in the chest in only 14 of these. In 1942 Harrington<sup>3</sup> reported upon 304 patients with diaphragmatic hernia. In only one instance was there a right-sided defect allowing the liver, stomach, duodenum, and small bowel to protrude into the chest.

In 1945, Keene and Copleman<sup>8</sup> discussed an isolated incidence occurring in a bombardier in the United States Air Force. This young man had suffered a crushing injury to the lower chest associated with separation of the right diaphragm and herniation of the liver and viscera into the right chest.

### Case Presentation

L. N. C., a 43-year-old white male, presented himself with the request for a "check-up." This check-up was prompted by advice from the State Board of Health following a routine chest survey in his area of the state. The report on the microfilm of the chest was "a well delineated mass obliterating the right cardiophrenic sulcus."

The patient had complained of vague epigastric pain for several years. For this he occasionally took some sodium bicarbonate. Bananas and the vegetables of the cabbage family seemed to aggravate his upper abdominal distress. There was no nausea or vomiting, no hematemesis, melena, or hemoptysis.

In 1930, this man had been in an automobile accident in which he fractured four ribs of the right anterior chest near the sternum.

X-ray examination revealed a rounded, well defined

density in the right cardiophrenic angle which was thought to be a pleuro-pericardial cyst. The possibility of a lipoma was also mentioned.

Electrocardiographic tracings, blood counts, gastric analysis, blood sugar and urea nitrogen, all were within normal limits.

A right thoracotomy was accomplished. A tumor in the right cardiophrenic angle proved to be an adenoma of the liver. The tumor was removed, and the rent in the liver was packed with Gelfoam and loosely sutured. The diaphragm was repaired from above with interrupted silk sutures.

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**Herniation of the liver through the right dome of the diaphragm is of uncommon occurrence. There are probably fewer than 20 similar circumstances reported in the literature to date.**

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Figure 1. X-ray evidence, mass, right cardiophrenic angle.

From the Department of Surgery, Wichita Clinic.



The patient did well and is living with no symptoms or recurrence today, more than two years post-operatively.

Pathological examination of the tumor growth itself disclosed it to be of the mixed type, or as has been noted previously in the literature, a hamartoma.

## Discussion

In 1950, an article by Kay et al.<sup>7</sup> disclosed that there were seven similar cases reported in the literature up until that time. To these seven cases, Kay added his two. A further case was added by one of the authors in 1956.<sup>1</sup> These ten hamartomas represent a small portion of the actual number of these specific types of liver growths. The fact that the adenoma protruded through the traumatic rent in the diaphragm is of considerable interest.

In 1934, Hedblom<sup>6</sup> noted that more diaphragmatic hernias were being discovered. Hedblom classified the congenital, acquired, and traumatic lesions and noted the total of 1,408 hernias. These included esophageal hiatus hernias as well as diaphragmatic dome hernias, regardless of the cause. Of this number, 587 were traumatic lesions.

In 1951, Child et al.<sup>2</sup> pointed out that herniation of all or part of the right lobe of the liver through the diaphragm was most uncommon, having been described in only six instances prior to 1951. It was pointed out by Child, as it has also been mentioned by Wolfson,<sup>13</sup> Lilienthal,<sup>10</sup> and Shoshkes,<sup>12</sup> that this type of herniation can closely simulate a right chest tumor. Child<sup>2</sup> reported on a 63-year-old sheet metal worker who suffered a fall at the age of 19 years, sustaining multiple fractures and cerebral concussion. Twelve years prior to his presentation the patient noted his first epigastric gastrointestinal symptom. It was thought that the trauma responsible for the diaphragmatic hernia had its onset 44 years prior to the surgical repair.

In 1953 Neal<sup>11</sup> reported the case of a 31-year-old male who had been in an automobile accident seven years prior to his surgery. It was felt by Neal that there were only ten prior right diaphragmatic hernias, to which he added his own. The repair was uneventful, as was the patient's recovery. Transthoracic approach for the repair of this defect was recommended.

The symptoms, because the difficulty is in the upper abdomen, are those of epigastric distress and indigestion.

In 1942 Harrington<sup>4</sup> reviewed 131 cases of diaphragmatic hernia. It was pointed out that it was a rare situation in which the right arch of the diaphragm was defective in order that it allow the liver to project through and be mistaken for neoplasm.

In 1948 Wolfson et al.<sup>13</sup> reported on a 47-year-old white female who presented herself with symptoms

of an epigastric nature associated with vomiting. The liver herniation through the central portion of the diaphragm was found to be covered with a thinned out, tendinous diaphragm or eventration. This closely resembles the situation found by Lilienthal,<sup>10</sup> and this similarity was directly compared by Wolfson. The repair was uneventful. It was thought by Wolfson that the herniation was due to a congenital defect in the dome of the diaphragm. The "door stop" feeling, on bending forward, was described as a prominent feature of the symptomatology.

Kleitsch et al.<sup>9</sup> presented a case report concerning a 54-year-old male with a complete herniation of the liver through the diaphragm following an automobile accident 6½ years before. It was noted by Kleitsch that the symptoms associated with this defect are usually of a gastrointestinal nature.

Shoshkes<sup>12</sup> states, in a presentation of post-traumatic diaphragmatic herniation of the liver, that definite criteria together with a clinical diagnosis of this syndrome are possible. By the radiologist it was pointed out that the usual appearance is that of a smooth, rounded, homogenous density situated centrally and supradiaphragmatically. Under roentgenoscopic observation, the mass may be seen to move intimately and synchronously with the diaphragm. Shoshkes reports one patient, a 27-year-old white male, admitted to the Bronx Veterans Hospital for study because of a right chest shadow. The young man had sustained a severe blow to the abdomen in a football game ten years prior to his presentation. The patient, on thoracotomy, was found to have a central rent in the diaphragm through which a smooth, rounded segment of the liver protruded. Postoperative recovery was uneventful.

In 1931 Lilienthal<sup>10</sup> adequately described the operative repair of a diaphragmatic herniation of the liver on the right.

The literature and the presented patient bear out the fact that these lesions are most unusual. Trauma in the past is almost always a factor. Recent trauma of a more severe and recognizable nature would damage the liver or other organs to the extent that immediate laparotomy would be necessary. Hence, the trauma must be of a nature sufficient to cause a rent in the diaphragm, but not severe enough to cause other organ damage.

The liver, in the right upper quadrant, tends to act as a tampon agent in the diaphragmatic rent, barring the other organs from the chest.

Herniation of the liver through the right dome of the diaphragm is of uncommon occurrence. There are probably fewer than 20 similar circumstances reported in the literature to date. Child et al. felt that this situation had been described in only six instances prior to 1951. In 1953 Neal stated that there were only ten

prior reported right diaphragmatic hernias in addition to his own, which he then presented.

A case of this unusual situation has been brought to a successful conclusion through a right thoracic approach. Pathologic examination of the portion of the liver removed proved a diagnosis of adenoma of the liver or hamartoma.

The symptoms and findings in these patients are those of epigastric distress and indigestion. The x-ray film may reveal a right cardiophrenic angle density. Previous authors have mentioned the association of neoplasm of the lung or pleuro-pericardial cyst in the differential diagnosis of this lesion. Trauma is usually a factor in the past, but not at the time of the surgical intervention.

### Summary

1. An additional patient exhibiting herniation of a benign adenoma of the liver through the right diaphragm is presented.
2. Patients with this abnormality, to the best of our knowledge, have been reported in the literature fewer than 20 times.
3. The etiology is almost always traumatic, although the trauma does not necessarily have to be recent.
4. Surgical repair via the thorax is recommended.

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In our concentration upon, devotion to, and accurate application of the potentials in diagnosis and therapy, there has been built up a reluctance and distaste for direct consideration with the patient of the financial background of medical care. However, a frank discussion before operation with the patient or his family of the probable total cost of intended surgical procedure and what part insurance will play in defraying the expense should have universal application, in order to eliminate this source of potential surgeon-patient misunderstanding as well as worry concerning the financial obligation involved. . . .

In the better care of the patient, we cannot afford to ignore his economic problems any more than his health deviations. One may very well depend on the other. A straightforward explanation of the hospital costs and surgical fees, preferably before operation or, in the case of emergencies, at a properly selected interval, should serve to eliminate this great element for misunderstanding and grave source of public antipathy and condemnation.

*William L. Estes, M.D., President  
American College of Surgeons*

## PRESIDENT'S PAGE

DEAR DOCTOR:

"Public Relations" is not the happiest choice of terms, but it is generally accepted and most people know what we mean when we use it.

For us, good public relations includes two ingredients: first, offering the public a good commodity, our services; second, ensuring public realization that it is a good commodity.

Speaking recently to a group of those priceless indispensables, our medical assistants, your president pointed out that it is not enough that a doctor endeavor in every way to furnish the finest medical service possible. The job is only half done if the patient does not fully comprehend that this is true, unless he feels, himself, that his doctor is furnishing him the finest, most modern, scientific, medical care available, sincerely, conscientiously, at a cost in keeping with comparable cost of other services and commodities he may require. Is that not the essence of "good public relations"?

Some medical societies spend large sums on radio and television programs, paid advertisements in newspapers, other highly emblazoned publicity stunts and campaigns. Our Kansas philosophy differs. We aim to create and cement better relationships by less pretentious or ostentatious procedures.

Primarily, we consider the first ingredient as fundamentally essential. Witness large attendances at postgraduate and circuit courses, active work of committees to improve quality of medical care, work of hospital staff organizations to the same end, voluntary participation and self-discipline entailed in raising and maintaining high standards under the hospital accreditation program. Does any other profession spend as much time, effort, proportion of financial income striving constantly to improve the quality of its services?

We believe we achieve the second ingredient through various means. Foremost is the work of our Woman's Auxiliary. Of tremendous "public relations" value is their work with their Health Career Clubs fostering interest in careers as nurses, technicians, occupational therapists, physical therapists, medical social workers (over 700 club members in Kansas). Also Auxiliary activity fosters better understanding of mental health needs, promotion of *Today's Health*, the work of their Legislation Committee, support of A.M.E.F., the traffic safety program, finally extracurricular activities such as serving in P.-T.A., on school boards, hospital auxiliaries, church, and charitable organizations.

Much is accomplished in the annual educational clinics for the medical assistant. She plays such a vital role in the direct relationship with the individual patient, in countless opportunities to heighten patient satisfaction, to achieve the miracle of keeping patients happy while protecting the doctor's schedule and conserving his time and energy.

Is not our sponsorship of Blue Shield a tangible service to the public which must greatly benefit our good relationships?

We place great value in our modest surveys of public opinion conducted with small informal groups. Great influence is exerted by physicians speaking before organizations, taking part in community activities, assuming leadership in many community projects. Recently we have learned the public approves our taking an occasional critical stand to publicly defend ourselves against unjust or undue criticism by public officials.

A television program presenting in simple fashion interesting medical subjects has seemed to be well received and effective. It will be developed further.

Of such projects is the Kansas public relations program constituted. Thus do we feel we are building more solidly, more effectively, and more surely than by highly publicized, expensive advertising campaigns as have been attempted elsewhere.

*Fraternally yours,*

A handwritten signature in dark ink, reading "Darrell A. Nelson". The signature is fluid and cursive, with a large initial "D" and a stylized "N".

*President*



## EDITORIAL COMMENT

### Nominating Committee Report

As required under the By Laws, Chapter VI, Section 1, the duly elected Nominating Committee met on Saturday, January 11, 1958, in Kansas City and respectfully submits the following slate of officers for consideration by the House of Delegates at Kansas City, May 4-7, 1958. The president will also call for nominations from the floor for each elective office.

#### President-Elect

**Glenn R. Peters, M.D.**, Kansas City, Kansas. Born 1912. M.D., University of Kansas, 1937. Diplomate, American Board of Surgery. Has served as councilor, was second vice-president, currently is first vice-president.

#### First Vice-President

**Frederick E. Wrightman, M.D.**, Sabetha, Kansas. Born 1892. M.D., Washington University, 1917. Specializes in cardiovascular disease. Has served as councilor and on the Interprofessional Advisory Council, currently is second vice-president.

#### Second Vice-President (listed alphabetically)

**Winstan L. Anderson, M.D.**, Atchison, Kansas. Born 1909. M.D., University of Kansas, 1934. Member, American Academy of General Practice. Has been chairman of Committee on Industrial Medicine, has served two terms as councilor of District No. 1.

**Justin A. Blount, M.D.**, Larned, Kansas. Born 1894. M.D., University of Kansas, 1922. Practices general medicine and surgery. Has served on committees, currently is councilor for District No. 14.

**Harold M. Glover, M.D.**, Newton, Kansas. Born 1887. M.D., University of Illinois, 1916. Diplomate, American Board of Surgery. Has served on committees, currently is councilor of District No. 10.

#### Treasurer

**John L. Lattimore, M.D.**, Topeka, Kansas. Born 1894. M.D., Fort Worth School of Medicine, 1918. Diplomate, American Board of Pathology. Was president of Kansas Medical Society, currently is treasurer.

#### Secretary

**George E. Burket, Jr., M.D.**, Kingman, Kansas. Born 1912. M.D., University of Kansas, 1937.

Member, American Academy of General Practice. Has been president of Kansas Academy of General Practice. Currently is secretary of Kansas Medical Society.

#### A.M.A. Delegate

**Lucien R. Pyle, M.D.**, Topeka, Kansas. Born 1901. M.D., Rush, 1928. Diplomate, American Board of Obstetrics and Gynecology. Was president of Kansas Medical Society, currently is A.M.A. delegate.

#### Alternate A.M.A. Delegate (listed alphabetically)

**Conrad M. Barnes, M.D.**, Seneca, Kansas. Born 1911. M.D., University of Kansas, 1936. Was president of Kansas Medical Society. Currently is immediate past president of Kansas Academy of General Practice.

**Norton L. Francis, M.D.**, Wichita, Kansas. Born 1910. M.D., University of Nebraska, 1935. Diplomate, American Board of Otolaryngology. Was chairman of Fee Schedule Committee. Currently is completing his second term as councilor for District No. 11.

**Robert G. Klein, M.D.**, Dodge City, Kansas. Born 1891. M.D., University of Illinois, 1915. Specializes in surgery. Has been chairman of the Fee Schedule Committee and has served two terms on the council.

Respectfully submitted,  
*Murray C. Eddy, M.D., Chairman*  
*Conrad M. Barnes, M.D.*  
*Clarence H. Benage, M.D.*  
*Oscar W. Davidson, M.D.*  
*L. S. Nelson, Sr., M.D.*

### A Relative Value Schedule

The Fee Schedule Committee is currently studying a relative value fee schedule for Kansas. The committee is deliberating the excellent pioneering effort of the California Medical Association which has already established a complete relative value schedule in each of the different specialized services of medicine.

The Kansas committee has learned, for example, that there is a significant dissimilarity in the various fee schedules in use in this state. It is immediately obvious, of course, that some fee schedules are higher than are others. A more important difference, however, is that fees for the various services do not bear

the same relationship to each other in the different schedules. By way of example, surgical procedure A may be 30 per cent higher than surgical procedure B in one schedule and 30 per cent lower than procedure B in another schedule. An even more dramatic variation can be found when different services are compared.

For example, it appears that the relationship between a home call and an appendectomy should bear a similar ratio regardless of what the monetary value of each of the services might be. The committee has learned this is not true in existing Kansas fee schedules. Neither is any Kansas schedule consistent with the relative values established by the California Medical Association.

The committee therefore is now undertaking to assign point values to every medical procedure. These points do not represent dollars. They will merely represent the relationship between the items listed. To use an example of only a very few from hundreds of items the California relative value schedule lists, a tonsillectomy and adenoidectomy is set at 15 points, an appendectomy at 35 points, and a gastrectomy at 100 points. This means only that those procedures are related to each other in that ratio.

To make this schedule useful, one need only assign a dollar value to a single procedure and then transpose them all by that same factor and a complete schedule has been prepared.

Kansas Blue Shield, for instance, is currently operating under two schedules, the \$3,000 and the \$4,500 plans. A third \$6,000 plan is contemplated. If Kansas had a relative value schedule, each existing fee schedule could be negotiated through the adoption of one figure. To illustrate, should the California values be taken and \$3.00 be the negotiated figure, the tonsillectomy would be worth \$45, the appendectomy \$105, and the gastrectomy would be \$300. Should a higher or a lower value be selected, the schedule would be varied accordingly.

The two problems remaining are that Kansas does not necessarily wish to accept the California relationships. This will be determined by the Fee Schedule Committee. The second decision rests with the House of Delegates as to whether they will adopt a relative value schedule for Kansas. If they can, it will thereafter eliminate the tedious and often haphazard work in the creation of a new fee schedule as was necessary a year ago by the introduction of the Medicare program. It may well become necessary again as other and new fee schedules are required locally, state-wide, and for private uses, for commercial insurance companies, for indigent care, for Blue Shield, and for many local, state, or national government services.

## A.M.A. Clinical Session

The American Medical Association's 11th clinical meeting was held in Philadelphia, December 3-6, 1957.

Dr. Cecil W. Clark of Cameron, Louisiana, was named 1957 General Practitioner of the Year after his selection by a special committee of the Board of Trustees for outstanding community service. Dr. Clark, 33-year-old country doctor who was a medical hero during Hurricane Audrey last June, was present at the meeting to receive the gold medal which goes with the annual award.

Speaking at the opening session on Tuesday, Dr. David B. Allman of Atlantic City, A.M.A. president, called for "more freedom, not less, in America and in the medical profession." Dr. Allman urged the delegates to embark on local action campaigns to enlist full community support in opposition to the Forand Bill, a pending Congressional proposal which would provide hospital and surgical benefits for persons who are receiving or are eligible for Social Security retirement and survivorship payments. The Forand Bill, he said, is "cut from the same cloth" as national compulsory health insurance and "emanates from the same minds."

Total registration at the end of the third day of the meeting, with half a day still to go, had reached 5,375, including 2,562 physician members.

In settling the most controversial issue at the Philadelphia meeting, the House of Delegates approved a joint report of the Council on Drugs and the Council on Foods and Nutrition which endorsed the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood. The 27-page report on the study which was directed by the House at the Seattle Clinical Meeting one year ago contained these conclusions:

"1. Fluoridation of public water supplies so as to provide the approximate equivalent of 1 ppm of fluorine in drinking water has been established as a method for reducing dental caries in children up to 10 years of age. In localities with warm climates, or where for other reasons the ingestion of water or other sources of considerable fluorine content is high, a lower concentration of fluoride is advisable. On the basis of the available evidence, it appears that this method decreases the incidence of caries during childhood. The evidence from Colorado Springs indicates as well a reduction in the rate of dental caries up to at least 44 years of age.

"2. No evidence has been found since the 1951 statement by the Councils to prove that continuous ingestion of water containing the equivalent of approximately 1 ppm of fluorine for long periods by

large segments of the population is harmful to the general health. Mottling of the tooth enamel (dental fluorosis) associated with this level of fluoridation is minimal. The importance of this mottling is outweighed by the caries-inhibiting effect of the fluoride.

"3. Fluoridation of public water supplies should be regarded as a prophylactic measure for reducing tooth decay at the community level and is applicable where the water supply contains less than the equivalent of 1 ppm of fluorine."

Acting on the issue of free choice in relation to contract practice, the House passed a resolution which reaffirmed approval of previous interpretations of the *Principles of Medical Ethics* by the Association's Judicial Council and directed that they be called to the attention of all constituent associations and component societies. One Council opinion, issued in 1927 and reaffirmed in Philadelphia, stated that the contract practice of medicine would be determined to be unethical if "a reasonable degree of free choice of physician is denied those cared for in a community where other competent physicians are readily available." The resolution also cited a Council opinion, published in the October 19, 1957, issue of the *Journal of the A.M.A.*, which stated that the basic ethical concepts in both the 1955 and 1957 editions of the *Principles of Medical Ethics* are identical in spite of changes in format and wording. This opinion added that "no opinion or report of the Council interpreting these basic principles which were in effect at the time of the revision has been rescinded by the adoption of the 1957 principles."

The 1927 Council report also pointed out that "there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided." Judgment of whether or not a contract is ethical, the report said, must be based on the form and terms of the contract as well as the circumstances under which it is made.

In another action related to the issue of free choice, the House adopted a resolution condemning the current attitude and method of operation of the United Mine Workers of America Welfare and Retirement Fund "as tending to lower the quality and availability of medical and hospital care to its beneficiaries." The resolution also called for a broad educational program to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the "Guides to Relationships between State and County Medical Societies and the U.M.W.A. Welfare and Retirement Fund" which were adopted by the House last June.

The House condemned the Forand Bill as undesirable legislation, approved the firm position taken in opposition to it, and expressed satisfaction that the Board of Trustees has appointed a special task force which is taking action to defeat the bill. In a related action, giving strong approval to Dr. Allman's address at the opening session, the House adopted a statement which said:

"It is particularly timely that our president has so forcefully sounded the clarion call to the entire profession for emergency action. With complete unity, definition and singleness of purpose, closing of ranks with all age groups and elements of our organization we must at this time stand and be counted. Thus we can exert the physician's influence in every possible direction against invasion of our basic American liberties in the form of proposed legislation alleged to compulsorily insure one segment of the population against health hazards at the expense of all."

The House considered three resolutions dealing with the Asian influenza immunization program and then adopted a substitute resolution calling attention to "certain inadequacies and confusions in the distribution of vaccines" and directing the Board of Trustees to seek conferences through existing committees "with a view to establishing a code of practices regulating the future distribution of important therapeutic products, so that the best interest of all the people may be served." The resolution pointed out that the American Medical Association already has a joint committee with the American Pharmaceutical Association and the National Association of Retail Druggists, in addition to a liaison committee with the Drug Manufacturers Association.

The House accepted a 115-page *Guide to the Evaluation of Permanent Impairment of the Extremities and Back* which was developed by the Committee on Medical Rating of Physical Impairment as the first in a projected series of guides. The delegates commended the committee for doing "a superb job on this difficult subject" and expressed pleasure that the guides will be published in the *Journal of the A.M.A.* The guides are expected to be of particular help to physicians in determining impairment under the new disability benefits program of the Social Security Act.

Among a wide variety of other actions, the House also:

Directed that a new committee be established in the Council on Industrial Health to study neurological disorders in industry;

Noted with approval the establishment of the American Medical Research Foundation, which will initiate and encourage necessary medical research and correlate and disseminate the results of studies already under way;



Decided that informational materials which are sent to A.M.A. delegates should also be sent to all alternate delegates;

Affirmed that it is within the limits of ethical propriety for physicians to join together as partnerships, associations or other lawful groups provided that the ownership and management of the affairs thereof remain in the hands of licensed physicians;

Instructed that the appropriate committee or council should engage in conferences with third parties to develop general principles and policies which may be applied to the relationship between third parties and members of the medical profession;

Urged state medical society committees on aging and insurance to make continuing studies of pre-retirement financing of health insurance for retired persons;

Endorsed a suggestion that the Committee on Federal Medical Services sponsor a national conference on veterans' medical care during 1958;

Asked the Board of Trustees to study the feasibility of having the Association finance a thorough investigation of the Social Security system by a qualified private agency;

Suggested that physicians and their friends make a vigorous effort to obtain Congressional enactment of the Jenkins-Keogh bills;

Approved the "Suggested Guides to Relationships between Medical Societies and Voluntary Health Agencies";

Strongly recommended that a completely adequate and competent medical department be established in the Civil Aeronautics Administration directly responsible to the C.A.A. Administrator, and

Congratulated the General Electric Company for its medical television presentations on the subject of quackery.

Sincerely,

*George F. Gsell, M.D.*

*L. R. Pyle, M.D.*

*A.M.A. Delegates*

The Smith, Kline and French Foundation, independent philanthropic arm of Smith, Kline and French Laboratories, recently announced in detail its disbursement of \$1,457,876, mostly in the field of basic research in medicine and related sciences. The period covered four years, from 1953 through 1956.

Two grants were received in Kansas. The Menninger Foundation, Topeka, received \$3,000 in 1954 and \$3,000 in 1956, funds not restricted to any particular project. The University of Kansas in Lawrence was given \$3,500 in 1955 for basic research in biochemistry under Dr. Harold W. Barrett.

## Cancer Conference to Honor Physician

The 10th annual Midwest Cancer Conference, to be held at the Broadview Hotel, Wichita, March 13 and 14, will honor Dr. C. C. Nesselrode, Kansas City, for his long record of service to the state and national organizations. The program is designed to be of interest and benefit to every physician in the state, regardless of specialty.

Dr. Newman C. Nash, program coordinator for the conference, has announced the following list of speakers and subjects:

Dr. Arthur Upton, Oak Ridge, "The Role of Hormonal Factors in the Pathogenesis of Leukemia" and "Hazards of Ionizing Radiation of Practical Concern to Physicians."

Dr. J. A. del Regato, Colorado Springs, "The Treatment of Hodgkin's Disease, Lymphosarcoma, and Leukemia."

Dr. George Moore, Buffalo, New York, "The Use of Anti-Cancer Agents in Conjunction with Surgery" and "The Treatment of Advanced Breast Carcinoma with TSPA."

Dr. George Crile, Cleveland, "The Role of Endocrine Glands in the Production and Treatment of Cancer."

Dr. Maxwell M. Wintrobe, Salt Lake City, "The Use of Chemicals and Other Agents in Treatment of Leukemias and Lymphomas."

Dr. Joseph W. Beard, Durham, North Carolina, "Virus Tumors" and "Avian Leukosis Viruses."

Dr. G. Burroughs Mider, Bethesda, Maryland, subject to be announced.

Dr. David Karnofsky, New York City, subject to be announced.

## New TV Health Films

The American Medical Association announces that two new 10-minute films were made available February 1 for use on local television and for showings to school and church groups. "The Silent Killer" deals with the dangers of carbon monoxide poisonings from gasoline exhausts. "Out of Step" tells the dramatic story of an accident which occurs to a child whose father has always ridiculed safety measures, first aid, and other so-called "boy scout" ideas. The Scouts, of course, come to the rescue.

Both of these black-and-white sound films are available on loan to medical societies, local television stations (with medical society approval), health departments, voluntary health agencies, and schools. Only charge is for return shipping. These films were developed by the Bureau of Health Education and produced by the Marshall Organization. Dr. W. W. Bauer, bureau director, serves as narrator.



"For some time after the remarkable paper by Dr. Fitz in 1889 the condition of 'acute hemorrhagic pancreatitis' was believed to be of great rarity; but . . . investigations of the surgeon have shown that infrequency of occurrence meant inadequacy of observation. . . .

"The onset of pain in acute pancreatitis is usually sudden . . . about one third occurred in patients who were the subject of recurring flatulent dyspepsia. . . . The intense pain, then, is sudden in onset, is confined within the abdomen to the upper portion, but passes almost always through to the back; it is agonizing beyond endurance, and is not seldom the cause of fainting or a profound collapse. . . . The whole appearance and attitude of the patient suggest that death may be imminent, for the extremities are cold, the heart beats with great rapidity, and the quality of the pulse is poor. Vomiting is an early symptom, is frequently repeated, and may last for days or weeks if the patient should survive so long. The food that has been taken is the first to be ejected; afterwards all the vomited matters are deeply stained with bile, and pure bile, to all appearance, may be brought up in large quantities. . . . The abdomen, when examined early, presents the most indomitable rigidity and some fulness in the upper part; the remaining parts may be quite soft and flaccid, yielding readily to the hand, or they may be held with some degree of firmness. The upper portion of the abdomen, the epigastric region especially, never ceases to offer the most incoercible resistance, and, however gentle the examination may be, it is grievously resisted and is repelled at the earliest occasion. . . . The number that have been correctly diagnosed before the operation is extremely small; yet I am confident that the symptoms are of such character as to make a recognition of their cause a matter of very little difficulty. Briefly to recapitulate, there is, perhaps, in a patient inclined to stoutness a history of

antecedent dyspepsia which presents nothing of the characteristic features of duodenal or, indeed, of gastric ulceration, but which suggests rather the presence of stones in the gall-bladder, and jaundice may have been noticed on one or many occasions. The severe pain comes quite suddenly, is beyond the limits of human fortitude to withstand, is associated with collapse of a profound character, and may cause the patient to swoon. The limbs are cold, the pulse extremely poor, rapid, and thin, or even hardly to be felt and not to be counted. The face may be cyanosed. The upper part of the abdomen is exquisitely tender, and all the muscles there offer the most resolute resistance to any examination. Vomiting is an early and often a conspicuous feature. I do not think a group of symptoms at all similar is to be found in any form of abdominal calamity. There can be no doubt that, as in the case of perforations of the stomach or duodenum, recovery may follow an attack of acute pancreatitis."

Sir Berkeley Moynihan did not have serum amylase determinations to help him with the diagnosis of acute pancreatitis, but if that is taken away from our present-day armamentarium, the clinical description is not too different, and justifies consideration when we see patients having obscure acute abdominal disease. This description was written in 1911 but has that characteristic of so many of the writings of the masters—although lacking some recently developed laboratory procedures and x-ray studies, it is filled to overflowing with careful clinical observations and logical reasoning. It is not possible to read writings of some of the older physicians without having the greatest admiration for their powers of clinical observation and without amazement that they accomplished so much. After another half-century, probably the space-traveling, atomic-minded physicians of the day will wonder how we got along with so little!—O.R.C.

## Maternal Death Study—Case History

The patient was a 42-year-old gravida 10 para 9 who died in a small, well-equipped, well-staffed general hospital in a small city. Cause of death was given as "hemorrhage following delivery." There was no autopsy or staff review of the case.

Prenatal care was virtually nil because of the patient's refusal to seek it. The attending physician had attended the two previous deliveries, the patient not calling until she was actually in labor. She consulted him three weeks before term in the final pregnancy but became upset during the visit and left the office without examination. The next contact was again after labor developed.

Normal labor was in progress when the patient arrived at the hospital, and the first stage proceeded satisfactorily, analgesia being accomplished with self-administered inhalations of Trimar. Toward the end of the first stage, she had a brief clonic convulsion with cyanosis which subsided immediately on administration of oxygen by mask.

Delivery was spontaneous two and a half hours after admission under open drop ether anesthesia. A normal 7-pound 7-ounce male was delivered, the placenta being expelled simultaneously with estimated blood loss of 300 cc. Another loss of 300 cc. occurred during the next 10 minutes because of failure of the uterus to contract despite Pitocin and Ergotrate administration. The vagina, cervix, and uterus were examined for lacerations and when none were found, the physician packed the uterus and vagina with gauze. The patient was returned to her room, Pitocin was started by intravenous drip, and the physician left the hospital.

Within five minutes, bleeding through the pack was noted and he was recalled. Cross-matching for transfusion was ordered and the pack was removed with loss of an estimated liter of clotting blood. A typical shock picture developed, and serum albumen, 100 cc., was given intravenously. The patient was Group B Rh positive, and it was necessary to call donors as the hospital had none on hand. Blood was started one hour after development of shock, but the patient did not recover and expired some 45 minutes later. Consultation was not called as the physician was so busy with the patient he did not have the opportunity.

### Committee Action

The committee felt that the exact cause of death was never determined, but uterine atony or occult rupture of the uterus or a combination was most probable. The errors noted included failure to appreciate the volume of blood loss, inadequate packing of the uterus, and delay in administering blood which entailed delay in calling for typing and crossmatching and inadequacy of the hospital blood bank service. The fundamental error was the failure to diagnose the cause of bleeding so that it could be treated effectively. Failure to use universal donor blood was not explained. The inherent danger of the elderly grand multipara was emphasized. The patient's attitude toward prenatal care was regrettable but cannot be considered a direct contributory factor in her death.

**CLASSIFICATION: DIRECT OBSTETRICAL DEATH; PREVENTABLE; ERROR OF PHYSICIAN, DEFICIENCY OF HOSPITAL SERVICE; NO AUTOPSY.**

(Second of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.)



## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

Russian advances in outer space have triggered a whole series of debates, not the least of which is the issue of the scope and extent of federal participation in higher education. From it may emerge at the very minimum a scholarship program benefiting pre-medical students and some medical students.

Here are some of the questions that Congress will have to answer before it writes a final bill on federal aid to higher education:

1. Should a program be limited to federal scholarships or should it include grant money for improving and enlarging colleges and universities, or for loans to students?

2. If it is limited to scholarships, should they be non-categorical in nature rather than favoring specific disciplines?

3. If non-categorical and thus benefiting all phases of higher education, how best to justify this approach in the national interest and national security?

4. Finally, if aimed at specific disciplines, should not Congress require some obligation for service on the part of the recipient?

Some of the answers have been given in the administration's plan now before Congress. As outlined by Secretary Folsom of the Department of Health, Education and Welfare, \$1 billion would be authorized over a four-year period. The money would go for 10,000 scholarships a year to bright students unable to finance their schooling, for National Science Foundation grants and fellowships for post-doctoral training up to \$125,000 for any one school to improve facilities.

It has been explained that this program would benefit pre-medical students but since scholarships would be limited to four years, students would have to find other ways to finance most of their years in medical school. After receiving their medical degrees, however, they would be eligible for the fellowships from the National Science Foundation.

The administration program favors the non-categorical approach, although preference would be given high school students with good preparation in math and the sciences. Students themselves would decide what college courses to pursue.

This program has met mixed reaction. Educators say considerably more money should be authorized—

some asking for as much as four times the proposed \$1 billion.

The American Council on Education, which takes in nearly all accredited colleges, universities, and junior colleges, told a House Education subcommittee that the 10,000 scholarships are "a minimum below which a program of effectiveness would be doubtful. . . ."

The council outlined for the subcommittee these guiding principles:

1. The student should have complete freedom to choose his own program of studies within the requirements set by the individual institution.

2. Stipends up to a maximum amount set generally for the program should be sufficient to enable the student to attend an eligible college.

3. The student should not be denied the opportunity to attend any recognized college or university properly accredited under a regional accrediting association.

4. There should be no discrimination because of race, creed, color or sex.

First legislative activity of interest to the medical profession this year was the House Ways and Means Committee's month-long hearing on tax revision; testimony in favor of the Jenkins-Keogh bill was presented late in January.

National Science Foundation is inviting colleges and universities to apply for financial help in conducting in-service courses and institutes for advanced study by high school mathematics and science teachers. Applications must be received by NSF before March 15.

A new national organization has been established to help in finding a cure for ulcerative colitis. Encouraged by the National Institute of Arthritis and Metabolic Diseases, the new foundation will use its funds to supplement those awarded by the federal government.

After six months' operation of the disability payments program under social security, benefits were going to more than 131,000 and totaled \$10 million a month. Within the next 12 months the rolls are expected to increase to about 200,000, at an annual cost of about \$175 million.

Atomic Energy Commission has in effect reduced its permissible level of life-time radiation exposure by about two-thirds. The safety regulation applies to AEC employees and those of AEC contractors.

## PHYSICIANS' ACTIVITIES

**Dr. Ernest W. Crow**, Wichita, has been named to a three-year term on the board of directors of the Wichita Chamber of Commerce.

A paper, "Emergency Treatment of Eye Injuries," written by **Dr. Albert N. Lemoine, Jr.**, Kansas City, was published in the December 1957 issue of the *Journal of the Iowa State Medical Society*.

**Dr. William L. Valk**, of the University of Kansas Medical Center, will speak on "Fluid Therapy in the Face of Acute Renal Insufficiency" at a meeting of the American College of Surgeons in Des Moines on March 29. He will also participate in a panel discussion on "Fluids and Electrolytes."

A feature story in the *Kansas City Star* on December 29 paid tribute to **Dr. and Mrs. Clifford C. Nesselrode**, Kansas City, on the occasion of their 50th wedding anniversary.

**Dr. John G. Esch**, Pittsburg, has become a diplomate of the American Board of Surgery.

**Dr. Clarence K. Schaffer** has resigned as chairman of the Topeka-Shawnee County Advisory Board of Health and **Dr. Floyd C. Beelman** has been named to replace him.

Governor George Docking has announced the appointment of **Dr. Lafe L. Bresette**, Kansas City, to the board of examiners in podiatry for the state of Kansas.

An article by **Dr. Anthony F. Rossitto**, Wichita, was published in a recent issue of *Eye, Ear, Nose and Throat Monthly*. The subject was "Roentgen Therapy of Pharyngeal Tissue in Children."

**Dr. Richard E. Hille**, formerly of Lakin, has begun practice in Cherryvale.

**Dr. H. O. Marsh**, Wichita, recently completed a one-week course of study and observation on surgery of the hand, with **Dr. Sumner L. Koch** and **Dr. Michael Mason** in Chicago.

Fellowship in the American Academy of Pediatrics was recently granted **Dr. Ned F. Smull** and **Dr. Calvert J. Winter**, Kansas City.

**Dr. Kenneth Carbaugh**, Mission, announces that **Dr. Hugh W. McCaughey**, a graduate of the Uni-

versity of Kansas School of Medicine in 1953, is now associated with him in practice. **Dr. McCaughey** served in the Army in Germany for two years and has had residency training in internal medicine.

"The American Cancer Society and the Cytology Program" was the subject chosen by **Dr. J. P. Berger**, Wichita, for presentation at "Home Economics Days," January 28 and 29, at Kansas State College, Manhattan.

**Dr. Robert W. Hughes**, who has been practicing in Russell, went to Kansas City the first of the year to begin a three-year fellowship in internal medicine.

A memorial honoring the late **Dr. Benjamin Brunner**, who died September 29, 1957, is being planned by the board of trustees of the Genn Hospital, Wamego.

**Dr. Robert Wallerstein**, of the Menninger Foundation, Topeka, has been named a fellow in the American College of Physicians.

"A Doctor in the House" was the subject given a feature story about **Dr. Victor L. Jackson**, now practicing in Altamont as a result of the "Kansas Plan" for rural health. The story, written by Ed Campbell, was given distribution throughout the nation by the *Associated Press* as a recognition of the success of the Kansas program.

**Dr. C. Ray Athey, Jr.**, Wichita, was guest speaker at a meeting of the Sedgwick County Medical Assistants' Society, January 15. He discussed the subject of hypnotism.

### Osteopaths Receive New Licenses

One hundred forty-one doctors of osteopathy are now licensed to practice surgery and use drugs in Kansas, according to an announcement made recently by the Kansas Healing Arts Board. They received the licenses after having successfully passed examinations given by the board, November 4 and 5, 1957. Three additional doctors of osteopathy were successful in the examination but have since died.

A report on a national conference sponsored by the American Medical Association and the National Association of Radio and Television Broadcasters, "How to Use Local Television and Radio in the Health Field," is now available from the Department of Public Relations of the A.M.A. The conference was held in November, and more than 125 broadcasters and representatives of medical societies attended.

# Tumor Conference

## *Gastric Ulcer and Malignancy*

Edited by THOMAS J. FRITZLEN, M.D.

Dr. Stowell: This case illustrates some of the many problems that arise in attempting to distinguish between benign ulcer and gastric malignancy.

Mr. Rozin (Medical Student): This case concerns a 63-year-old white man admitted to this hospital on October 16, 1957, with the chief complaint of nausea, vomiting, and diarrhea of four days' duration. He first began to experience epigastric pain in the spring of 1955 and consulted his physician, who made a diagnosis of gastric ulcer on the basis of history and physical findings and placed him on anti-acids and bland diet. He followed this regimen for approximately three months with relief of symptoms and then discontinued treatment.

Epigastric pain and distress recurred at intervals of two to three months until the time of admission to this hospital. Four days prior to admission, he began to experience diarrhea and vomited bile-stained material which sometimes contained food particles. Both complaints were more prominent in the evening hours. The stools were described as loose and watery, and he denied the appearance of blood or black material in either stools or vomitus. Physical examination revealed no abnormalities except those of the abdomen. The liver was palpated 3 cm. below the right costal margin, and there was slight epigastric tenderness. No other tenderness or masses were found.

Dr. Stowell: Are there additional findings on laboratory examination that might be of help?

Mr. Rozin: Yes, cytologic examination of gastric washings revealed cells described as being abnormal and requiring further investigation.

Dr. Kittle: Numerous gastric analyses were done at various times during his stay. In addition to a complete gastric analysis, each time that he had an episode of gastric retention and required a nasogastric tube, the gastric aspirate was checked. On two occasions free hydrochloric acid was noted, but in all other examinations no free acid was present.

Dr. Gomm: The first upper gastrointestinal examination was done on September 27, 1957. On the lesser curvature there is a large ulcer (Figure 1), but no evidence of tumor. No lesions were seen in the esophagus. Pylorospasm was noted by the examiner; the

distal antrum was irritable and never filled to the normal diameter of the proximal gastric antrum. It was the impression of the examiner at this time that there was possibly a pre-pyloric ulcer in addition to the large ulcer that was seen on the lesser curvature.

One month later a second examination showed that the ulcer on the lesser curvature was larger (Figure 2) than at the time of the first examination. In addition, the examiner noted a pre-pyloric ulcer and considerable antral spasm.

A third examination two weeks later showed no ulcer on the lesser curvature (Figure 3). There was considerable stiffening of the antrum, and peristaltic waves did not pass through it. There was also considerable secretion and retained food in the stomach and, from a radiological point of view, it is quite possible that the ulcer could be present but, because of food and secretion, did not show on the x-ray examination. The final comment after this third examination is that because of the changes in the antrum a high suspicion of carcinoma should be entertained.



Figure 1. Roentgenogram showing ulcer crater on lesser curvature in distal antrum indicated by arrow.

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Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U.S. Public Health Service, and the Kansas Division of the American Cancer Society. Dr. Fritzlen is a Trainee of the National Cancer Institute.





Figure 2. Ulcer is increased in size one month later.

Dr. Stowell: Dr. Klotz, would you comment on the medical aspect of ulcers? It appears that this is an ulcer that has not responded to medical management.

Dr. Klotz: When first we heard of this man's complaints of vomiting we considered a possible milk-alkali syndrome. The history of diarrhea is not characteristic of gastric ulcers but does occur with gastric carcinoma. I had not seen the last gastrointestinal x-ray previous to this conference. I see now that there are very definite changes which indicate the need for surgical intervention. Every gastric ulcer should be first evaluated as to whether it is benign or malignant. Using all available diagnostic means one can make an ultimately correct diagnosis in all except 5 or 6 per cent of cases. Obviously, in this case those handling the patient were not satisfied that this was a benign ulcer and proceeded with what I believe to be the correct course, surgical exploration.<sup>1</sup>

Dr. Stowell: Was this patient gastroscopied, Dr. Klotz?

Dr. Klotz: Yes, at the time of the second x-ray examination we gastroscopied this patient. We were able to demonstrate free acid in the gastric aspirate. We had a good view of the antrum and thought that much of the x-ray deformity was due to spasm. We visualized the ulcer tangentially, and the parts that we could see appeared benign, and it was our impression as a result of this examination that the ulcer on the lesser curvature was probably benign.

Dr. Stowell: What was found at operation?

Mr. Rozin: Instead of the encircling tumor in the pre-pyloric region that one might have expected from the x-ray pictures, there was an area of induration of the lesser curvature of the stomach just proximal to the pylorus. This did not appear to be malignant, and a subtotal gastric resection was done. The stomach was opened for examination and there was a rather large ulcer on the lesser curvature approximately 5 cm. proximal to the pylorus. It was penetrating and had a greyish-greenish-red base. The edges appeared rolled, the rugae were thickened in the region of the ulcer, and there appeared to be sloping away from the ulcer which some consider as suspicious of carcinoma. The pathologic diagnosis of the gross specimen was of a benign ulcer, with final diagnosis to await microscopic study.

Dr. Boley: In this specimen of stomach the rugal folds extend right down into the ulcer. In the fresh state one could freely move the rugae. Looking at this ulcer as Dr. Klotz looked at it, and as we were able to look at the fresh gross specimen, one would have to say that it is benign. However, after the specimen was fixed and we cut into the ulcer to take our sections, one can see that the muscularis comes up to this ulcer and then just fades out. Because the ulcer did not cut sharply across the muscularis, we felt it was probably malignant. On occasion when one cannot say from the external appearance whether a lesion is benign or



Figure 3. Ulcer crater is not apparent two weeks after Figure 2.

malignant, the surgeon may open the stomach and cut across the ulcer. One can get more information from such a cut section of an ulcer, but that is sometimes difficult to do during the operation on a patient.

Dr. Stowell: What were the findings in the microscopic sections?

Dr. Boley: At low power away from the lesion there is normal mucosa and muscularis, and as one nears the edge of the ulcer area there is increasing fibrosis, loss of the muscularis, and finally tumor. Examining the area of tumor shows extension through and beneath the muscularis. On higher power the cells are arranged in acini and have hyperchromatic nuclei. Near the mucosal surface there is only slight hyperchromatism, but progressing down toward the ulcer bed there is more hyperchromatism of the nuclei. In another section under low power there is a punched-out appearance and no fibrosis to bind the overlying mucosa to the muscularis. In this area we see only tumor cells in the bed of the ulcer but not enough inflammatory reaction or fibrous tissue proliferation to bind the overlying mucosa to the wall of the stomach. None of several lymph nodes show tumor. No other ulcer was seen.

Dr. Stowell: It was pointed out that there are times that the gastroscopist cannot tell whether the ulcer is benign or malignant, times when the radiologist cannot tell, times when the surgeon cannot tell, and times when the pathologist cannot tell until he has cut across the ulcer with his knife. May we infer, Dr. Boley, from your previous remarks that the pathologist cutting across the area with his knife can tell with more accuracy than the other persons involved?

Dr. Boley: No, this method is not assured of perfect accuracy any more than any of the other methods discussed. It happens that in this case we were fortunate that when cutting across the ulcer we were able to demonstrate evidence of probable tumor.

Dr. Kittle: I do not think that there is any more perplexing problem in the entire field of medicine than that presented by the patient with gastric ulcer. The problem encompasses a broad spectrum. At one extreme are those patients in whom history, physical examination, and radiologic findings leave no doubt in the mind of anyone who sees them that one is dealing with a benign ulcer and that on proper medical management healing will result. At the other end there are those cases in which physical examination and radiologic findings leave no question that the lesion is frankly malignant. With these two groups there is no problem.

It is the intermediate group which gives trouble, and I do not know that we will ever be able to settle this question to the satisfaction of all. If a patient in this intermediate group is seen by the radiologist, by the clinician, by the gastroscopist, and by the surgeon,

and there is question by any of them that this may represent malignancy, then one is obliged to go ahead with laparotomy and removal of the lesion. By this method one will undoubtedly remove some benign ulcers, but on other occasions one will resect the stomach of a patient such as the one we are discussing here with an early carcinoma. In this intermediate group, if an ulcer fails to heal after four or six weeks medical management or if there is any increase in size of the ulcer on radiologic examination, then this is the stomach that must be excised to remove any doubt of malignancy.

Achlorhydria is also an important factor in malignancy, and with achlorhydria in all except perhaps two of the specimens in this patient and with the radiologic findings, I fully expected to find a large malignant lesion encircling the antrum of the stomach.

Dr. Hardin: I would just like to emphasize that even a malignant ulcer may heal over on medical management. Then you have a sense of security which may be quite false.

Dr. Stowell: Dr. Boley has raised a possibility of biopsying the lesion at the time of surgery. How feasible is this? Would a frozen section of such a biopsy be of assistance in making a diagnosis?

Dr. Boley: Yes, this can be done. However, the important question arises as to whether or not in such a procedure one might not spread tumor cells about the field.

Dr. Kittle: I would like to comment about the matter of biopsy. An old precept in surgery is credited to Halstead, that when doing a biopsy one should attempt to do an excision biopsy. One should not cut across tumor because of the real chance of spreading tumor cells. This is especially true when one is working in a body cavity. There are some surgeons who advocate what is known as a wedge excision in questionable lesions of the stomach; however, I believe that this presents many technical difficulties. I am most reluctant to risk cutting across tumor if I suspect that the lesion may be malignant.

Dr. Boley: In the case I mentioned, the surgeon opened the stomach opposite the ulcer and approached the ulcer through the cavity of the stomach so that the only place the tumor cells might have been spilled would have been onto the mucosal surface of the stomach.

Dr. Stowell: If the biopsy report is of a benign lesion, there is still the problem that there might be tumor elsewhere in the ulcer.

Dr. Boley: That is correct.

Dr. Stowell: Dr. Klotz, how long should you wait for healing to occur?

Dr. Klotz: Some gastroenterologists say four weeks; others, six weeks. In this period of time fairly rapid healing could occur in some cases. However, this is



subject to many variables, including how rigorously medical management is followed. One must still exercise judgment in the individual case.

Dr. Stowell: By exploring these doubtful cases, even though you may remove some benign lesions, you will increase opportunities for early detection of a malignant lesion and improve the cure rate in carcinoma of the stomach which at present is not good.<sup>2</sup>

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## Increase in Hospital Insurance

Benefit payments to persons covered by hospital expense insurance policies through the nation's insurance companies have increased more than 500 per cent since 1948, the Health Insurance Council reported recently.

Designed to help pay for hospital bills, these benefits, according to the council, have risen at a faster rate than the cost of hospital care in the United States. During the period from 1948 to 1956, hospital charges have increased 125 per cent.

In a projection of 1956 totals reported by insurance companies writing health insurance policies, the Council estimates that more than \$1 billion in benefits was paid in 1957 under hospital expense insurance plans, as compared to some \$150 million received by patients confined in hospitals in 1948. During 1956 alone, some \$900 million was paid in hospitalization benefits, added the Council, a 500 per cent increase in nine years. These figures represent payments made to help cover the cost of hospital expenses only, and do not include benefits paid by insurance companies through other types of policies to cover the expenses of medical, surgical, and major medical care, and for loss of income expense insurance.

Evaluating the report, the Council said that the "growth in benefit payments reflects both the greater proportion of hospital expenses being financed through insurance company policies, including practically every type of charge for hospital care, and the record expansion of these voluntary health insurance programs."

In this connection, the Council noted that nearly 40 per cent, or over 8 million people, of the 21 million who entered a hospital last year had insurance company policies to help pay for the cost of illness or accident. By the end of 1956, a record 66.3 million Americans were protected against the cost of hospital care,

both through individual and family health policies, and under group insurance programs. This represents an increase of 155 per cent in the number of people thus covered since 1948.

In concluding its report of the rise in benefit payments in the last nine years, the Council also noted that there has been a decrease in the time a patient remains in the hospital. According to the American Hospital Association, the average length of time in short-term general hospitals in 1948 was 8.1 days per patient. At the end of 1956, due to the advances in medical care and treatment, this average was reduced to 7.7 days.

The Health Insurance Council—comprising eight insurance associations whose members account for 90 per cent of the health policies written by insurance companies—serves as the central source of information for members of the medical and hospital professions on aspects of voluntary health insurance.

## A View of Russia

Impressions received on a trip to Russia were reported recently by Dr. Gunnar Gundersen, LaCrosse, Wisconsin, president-elect of the American Medical Association. "An Iron Curtain country it truly is," he said, "a police state without question."

He found engineering a profession preferred over medicine, although Russians say production of physicians is satisfactory and distribution is faulty. There are 360,000 physicians for approximately 200,000,000 people.

Dr. Gundersen did not see one car which he could identify as a privately owned one. Many of the 400,000 vehicles produced each year, according to report, are trucks.

"In Moscow, as elsewhere in Russia," said Dr. Gundersen, "everyone looks exactly the same; that is drab. No decent clothes are worn. There is no evidence of prosperity. The hotels are old and poorly maintained. The elevators are of an old vintage, hand-operated."

Although he found many things to be admired, the visitor summed up his impressions as follows, "After having spent only 11 days in the 'Worker's Paradise' it would seem to me that folks who are interested in extension of the welfare state should go to Russia to see what the situation really is like. It is obvious that with the total welfare state, freedom ceases to exist. There is no question but what it tends to level everybody downward. It certainly fails to upgrade anything except that possibly it does spread whatever goods there are to a larger number of people. If this represents an improvement over what the conditions were before the revolution, then one can only say that the conditions at that time must have been unspeakable."



# Herpes Simplex

## *A Review of Etiology, Manifestations, Transmission, and Epidemiology*

ERICH DANIEL RYLL, M.D., *Kansas City*

### Introduction

The virus of herpes simplex is probably one of man's oldest parasites. Burnet (1945) stated that the ability of this pathogen to spread easily from person to person denotes it has undergone a long period of evolution as a parasite of human beings. The organism is, then, an ancient virus that has reached a stable configuration.

It has been estimated (Burnet, 1945) that herpes simplex infects about 90 per cent of the people for approximately 90 per cent of their lives. The virus and the disease caused by it are unique in the realm of human afflictions in that they persists from generation to generation without being carried in from external sources. Thus, a child is infected from its parent and remains infected and able to transmit the disease to its progeny. Herpes simplex therefore, could have evolved with man throughout his entire history.

The disease is ubiquitous, having been found among such peoples as the New Guinea natives (Burnet, 1945), the Bantus of South Africa (Coetzee, 1955), West Indian natives, and the Chinese (Weyer, 1932), as well as civilized man generally. One instance in which herpes simplex was not found was reported by Hygaard (1939), who failed to find any cases of the virus infection in an epidemic of severe influenzal pneumonia in the Eskimos of East Greenland: "I saw neither herpes labialis nor the rusty sputum which is so common in European pneumonia."

Because the infection is usually not serious, it has not evoked much historical research. Shakespeare (1603) makes mention of herpes labialis in *The Tragedy of Romeo and Juliet*. Mercutio states that Queen Mab, the midwife of the fairies, rides in her chariot:

*O'er ladies' lips, who straight on kisses dream,  
Which oft the angry Mab with blisters plagues,  
Because their breaths with sweetmeats tainted are:*

### Etiology

The etiology of the diseases caused by herpes simplex has previously been in question. Löwenstein

This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Ryll is now serving his internship at Bethany Hospital, Kansas City.

(1919) isolated the virus from fever blisters. As late as 1938, Doerr suggested that herpes simplex is not an infectious agent but is rather endogenously generated in the human. While the etiology became firmly recognized subsequently, much work and observation have been tendered on the trigger mechanism of recurrent herpes simplex.

Heilig et al. (1928) attempted to induce recurrent herpes by suggestive therapy through hypnosis and produced typical lesions in their patients. Good and Campbell (1945) stated that recurrent herpes can be activated in rabbits by anaphylactic shock or histamine injections. Blank et al. (1950) listed the following as the most common factors that cause activation of the latent virus: upper respiratory infections, sunburn, gastrointestinal upsets, menstruation, mechanical trauma to the lips, foods as chocolate, and emotional disturbances. They studied 10 patients with recurrent herpes simplex and found them all to be characteristically passive, submissive persons who were anxious to please.

They were classified as orally receptive people who developed recurrent herpes simplex as a "vegetative response." As a typical case, they cited a woman who developed abdominal pain and herpetic blisters on the genitalia from guilt after intercourse. These people gained relief of recurrent herpes simplex and other symptomatology by psychiatric transference.

### Manifestations

Herpes simplex is manifest in two forms, primary and recurrent infection. McNair Scott (1955) succinctly listed the various types:

#### 1. Primary

a. *Gingivostomatitis*—This is the most common form, occurring usually between 1 to 3 years of age; it may occur less commonly in adults. The lesion is a vesicle which becomes collapsed, macerated, and covered with a grayish-yellow membrane. It is found anywhere in the mouth and throat, including the tonsils and tongue. Gums are sore, swollen, and red-purple in appearance; teeth are tender with mastication, and deglutition is difficult. Breath is foul. Marked sub-mental, sub mandibular, and other adenopathy always occurs. These patients have high fever up to three weeks and are often seriously ill.

b. *Genital*—Vulvovaginitis occurs in infants, older girls, and women. Infection of the penis is rare.

- c. *Skin*—Eczema herpeticum occurs when herpes infects the skin of an eczematous person. This affliction can be mild to fatal.
  - d. *Traumatic*—When virus is applied to the wounded skin, an infection may result. This is difficult to differentiate from herpes zoster.
  - e. *Primary of the newborn*—Newborn children develop an extensive infection of the viscera, especially the liver. A vesicular eruption may accompany this condition. The child becomes extremely ill, with necrosis of viscera terminally.
  - f. *Primary encephalitis*—This entity is found in 5 to 7 per cent of patients with so-called aseptic meningitis.
2. *Recurrent*
- a. *Vesicles of lip or face* that are thin-walled may occur. These are grouped, because circulating antibody prevents virus from causing viremia.
  - b. *Eye*—The conjunctiva, or conjunctiva and cornea together, may be invaded with formation of a dendritic ulcer.
  - c. *Genitalia*—Blisters form on the glans and shaft of the penis, termed herpes progenitalis. Vulvovaginitis occurs in the female; this resembles primary infection.
  - d. *Traumatized skin*—at times is involved in recurrent infection.
  - e. *Erythema multiforme*—People who are highly sensitive to the viral protein develop this condition, which occurs a few days after a recurrent infection.

Dodd et al. (1938) discovered herpes simplex to be the etiologic agent of aphthous stomatitis of infancy (primary herpetic gingivostomatitis). They inoculated material into rabbit corneas and found herpetic inclusions. For some time it was held that recurrent aphthous stomatitis was also caused by herpes simplex. Rogers et al. (1949) found no laboratory evidence to support this view. Blank and co-workers (1950) asserted that since all the infected cells have been shed after a primary attack, the virus has been eliminated from the area. They found no virus in recurrent aphthae by egg inoculation or by biopsy. Gajdusek et al. (1952), Buddingh and others (1953), and Ruchman (1950), all confirmed this finding. The last named author listed food or drug allergy and trauma as the etiologic agents of recurrent stomatitis.

In 1887 Kaposi (1895) described a rare type of skin eruption found as a complication of eczema in infants, but he was unaware of its etiology. This was called Kaposi's varicelliform eruption (eczema herpeticum). Wenner (1944) succeeded in implicating the virus of herpes simplex as the cause of this condition; he isolated the virus from three patients. Zuelzer et al. (1952) reported eight cases of primary herpes of the newborn. Other workers have found similar cases, many of which terminated fatally.

## Mode of Transmission

The method of spread of herpes simplex is still open to conjecture. Unlike influenza virus, which was found in samples of trapped air in a crowded gymnasium, herpes simplex could not similarly be detected by Caminta and Faber (1950). Burnet (1945) believed the infection was not by droplet, but rather due to the hygiene of feeding infants. Spoons and cups are contaminated by parents' saliva, and infection occurs in minor cracks and abrasions of the child's buccal mucosa. Older children possess a thicker, more resistant epithelium.

Virus was recovered from the saliva and stools of patients with herpetic gingivostomatitis, according to Buddingh et al. (1955). They postulated that lesions could develop in the alimentary mucosa distal to the mouth and pharynx. Stools and saliva produced virus from 15 to 42 days after the onset of acute infection. These people constituted the reservoir of healthy carriers which served for the spread of infection. The incidence of asymptomatic carriers ranged from 20 per cent among children seven months to two years to nine per cent among those from 3 to 14 years, and 2.5 per cent among adults. Buddingh regarded saliva and feces as the chief vehicles of infection.

Scott (1954) maintained that intimate contact was the most important factor in the spread of the virus and that this accounted for the altered incidence in different socio-economic classes. Infancy is the time of greatest bodily contact with people: kissing, hugging, fondling, etc. In adults, he reasoned, sexual intercourse is undoubtedly the best method of spread.

## Epidemiology

Much of the epidemiology of herpes simplex has eluded definition until recent years. Andrewes et al. (1930) noted that human sera, using intradermal neutralization methods, fell into two groups: (1) there was no neutralization or (2) the sera neutralized 1,000 infective doses of virus. They also observed that herpes simplex could recur in man in the presence of humoral antibody; yet the same serum could deter infection in either rabbit's skin or rabbit testis tissue culture inoculated with serum-virus mixtures. Hudson and others (1930), in intracerebral (IC) mouse neutralization studies, found no difference with distribution of neutralizing antibodies among pregnant, normal or menstruating women.

In a series of articles (1939), Burnet et al. expounded a new point of view of herpes simplex. They employed the chorioallantoic membrane of chick (CA membrane) technique of virus culture in performing neutralization studies. With this technique focal lesions called pocks developed on the CA membrane within two to three days after inoculation of a



suitable strain of virus. Results indicated an "all-or-nothing" character of herpes simplex infection, different from all other known virus infections.

Either the antibody titer was very high in a patient's serum or no antibody was to be found. Thus, the population could be divided into two segments: one had high antibody titer, while the other had none against herpes simplex virus. Burnet declared that with most virus diseases, once the infection had finished, the virus was destroyed or eliminated, rendering the patient non-infective for others. But herpes simplex persisted for life, usually in a latent form, and was called forth with appropriate stimuli. Outbreaks always occurred in the same site, suggesting that the virus vegetated in the skin cells at the site of the lesions. The virus allegedly supplied a constant or intermittent antigenic stimulus which maintained the circulating antibody at a high level.

It was postulated that the non-herpetic was frequently exposed but got no infection because of a non-immunogenic resistance. Herein then is the paradox of herpes simplex—the presence of a high antibody level does not interfere with the occurrence of local herpes. Burnet and Lush (1939) failed to isolate the virus in post-mortem Gasserian ganglia; others alleged that the virus was harbored there.

In the same year, Burnet and Lush (1939) presented a working hypothesis of herpetic infection: (1) Maternal antibodies are transmitted to the offspring and lost at about nine months of age. From nine months to five years, the buccal mucosa has a high susceptibility to infection. (2) After primary infection, virus persists throughout life in certain cells and recurs with incitants. (3) After early childhood, resistance to primary extrinsic infection is independent of circulating antibody. (4) This resistance can easily be overwhelmed with the inoculation of virus, but is sufficient to prevent infection of the intact mucosa. (Teissier et al. (1926) inoculated a volunteer with his own spontaneous strain of herpes and transferred the strain from one skin area to another for five to seven passages. Further passages could not be made, indicating the development of effective immunity.) (5) When adults have infection, it is transient, with very little antibody response, and it does not lead to the permanent carrier state. (6) The site of the persisting infection is not known.

Burnet (1945) proposed, in a series of addresses, two alternatives to herpetic infection: (1) One group is susceptible to environmental virus with a high antibody maintenance through recurrent new infections, while the other group is immune. (2) Once infection occurs, virus remains latent in the tissues and continuously or intermittently stimulates antibody production. As support of the latter hypothesis, Burnet

stated that children initially get stomatitis and rapidly build up from none to a high antibody level. In a random group of children, it was found that those with antibody had a level nearly as high as adults. Those people with no antibody almost invariably were not subject to recurrent herpes; all with recurrent herpes simplex had a high antibody level. Nägler's skin test (1946) showed absolute correlation of reaction with presence of antibody.

Andrewes and Carmichael (1930) were the first to suggest, in a study of post-encephalitic and other sera, using neutralization methods, that the socioeconomic level is important in herpetic infection. Eight medical students in England exhibited little antibody, while public hospital patients' sera were 78 per cent positive.

Burnet (1945) affirmed these findings. University graduates, non-graduate laboratory workers, and public hospital patients, in that order, evinced an increasing amount of antibody and a decreasing percentage of infection.

Anderson and Hamilton (1949) scrutinized 51 children in a Melbourne, Australia, orphanage and took swabs and performed neutralization studies by the CA membrane method. Of these children, 20 had developed antibody between 11 and 22 months; 20 had stomatitis and nine had sub-clinical infection. Maternal antibody disappeared at seven months, and new antibody did not show until 14 months; in that time interval, the infants were apparently resistant in the absence of demonstrable antibody.

Three hypotheses were put forth to explain this: (1) genetic resistance, disappearing at 12 months, (2) increased exposure and trauma between 6 and 16 months, (3) resistance due to maternal antibody that the authors could not measure by methods used. The age incidence of infection here was from 11 to 22 months, with an average of 14 months. Wenner (1944) reported primary infection in children only five months of age. Scott et al. (1950) confirmed the results of Anderson and Hamilton above in reporting 38 cases of herpetic gingivostomatitis in 5,016 children under five years of age. By age five, 60 per cent of these had had primary infection. Adults, they found, had an incidence of 63 per cent.

Boake and co-workers (1951) raised the question as to whether the recurrent lesions occur at the primary sites as Burnet had asserted, persisting in symbiosis within the cells. They contended that accurate records had not been kept of persons from infancy to adulthood. These workers noted that Kaposi's eruption in infants rarely led to recurrent herpetic lesions in the eczematous skin. The reason advanced was that a severe primary attack resulted in the elimination of virus from the area.



Jawetz et al. (1952) questioned the all-or-none hypothesis of Burnet. These workers performed neutralization studies of 17 human sera, of persons aged 20 to 62 years. They thought the Burnet CA membrane technique was not well adapted to quantitative measurement of differences in antibody concentration of sera. Their data yielded neutralization titers with a range as wide as found in any infectious disease. In addition, they found significant fluctuation in antibody titer over a period of 6 to 14 months. Furthermore, Wenner (1944) had observed the complete disappearance of humoral antibody in a 22-month-old child within seven to nine months after Kaposi's varicelliform eruption.

A number of studies have been done to determine the antibody status of various age groups against herpes simplex. Weyer (1932) initiated this type of study, using neutralization tests in mice. Below age five, he found only 14 per cent had neutralizing antibody; by the age of 15, the adult level of 90 per cent had been attained.

Holzel and others (1952) studied the distribution of complement fixing (CF) antibodies at different ages. They found that the number of positive sera fell in the second and third month and remained low until the end of the first year. Antibody rose rapidly during the second year and more slowly until adult life, indicating that primary infection occurs somewhat in adult life also. In comparison with neutralizing antibodies, the same trend was observed, but it was found that CF antibodies disappear earlier. This was possibly because the latter test was less sensitive than the CA membrane technique of Burnet in detecting small amounts of antibody.

Buddingh et al. (1953) reported on the natural history of herpes simplex infection. They selected out-patients of the Louisiana Charity Hospital, children with primary herpetic stomatitis, and normal carriers. Chick embryos were inoculated and neutralization studies with HF strain were made, using the CA technique. Among their 12 patients studied, the acute phase lasted an average of six to seven days, and at this time mouth soreness disappeared. Mouth swabs from four patients contained virus three to four days before it was found in the stools, suggesting that the stool virus was derived from the oropharynx. No virus was found in blood or spinal fluid, but the patients were not studied until the third day. Neutralizing antibody was found from the fourth to the seventh day following onset and attained its maximum level three to four weeks after onset. In all their patients with follow-ups, the maximum antibody level was not maintained indefinitely, but dropped to lower levels.

The greatest percentage of virus isolated from mouth swabs was from the seven months to two-year

group, and of these the greatest percentage were Negroes. It was estimated that opportunities for contact and infection occurred with much greater frequency among Negroes in the above age group. From 3 to 14 years, there was no difference in the isolation of virus or neutralizing antibody titer between white and Negro. Thus, school environment, in the opinion of the author, afforded white children greater chances for contact. Fourteen per cent more Negroes than whites had maternal antibody, indicating that a higher percentage of Negroes than whites had infection with the virus.

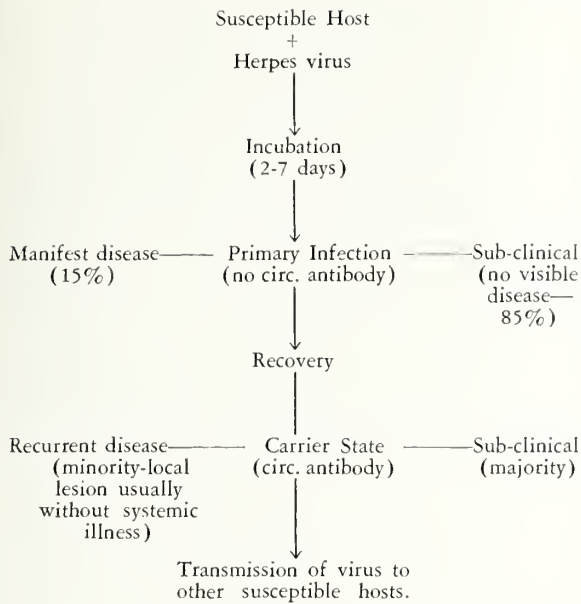
Buddingh stated that if latent virus resulted after primary infection, it did not serve as a continued stimulus for a high titer of neutralizing antibody. He felt that since herpes simplex can be recovered from a large reservoir, exogenous infection might account for cases of recurrent disease.

Scott (1954) wrote a review article on herpetic infection. He re-emphasized that latent virus provides a continued stimulus for antibody production. But the balance between latent virus and antibody might not be established until a number of infections have occurred. Once the balance has been established, antibody titer remains at a given level regardless of the number of recurrent attacks. He found the major pool of susceptibles lay between four months and two years of age. By age five, the adult level of neutralizing antibody had been established. In the average community, 80 per cent of primary infection was sub-clinical, but the percentage was higher in crowded communities.

Coetzee (1955) studied the Bantus in the Pretoria General Hospital of South Africa, collecting 417 sterile sera. He utilized the CA membrane technique. Results supported the all-or-none hypothesis of Burnet, as well as previous findings mentioned. Among the Bantus above age five, 100 per cent were found to have high antibody titer.

Garabed Garabedian et al. (1955) probably came closest to expressing the gist of present day knowledge of the antibody status regarding herpes simplex: "The precise role of specific humoral antibodies in recurrent herpetic attacks, whether of preventing the spread of virus from superficial tissues; or of determining by periodic fluctuation in titer the appearance of eruption, or of exerting a more intricate influence upon the host cell-virus relationship, is undecided." They disavowed the hypothesis of Brain (1937) and later Jawetz (1952) that a fall in antibody in the herpetic individual heralded the appearance of a new eruption. In Garabedian's subjects, the high antibody level failed to prevent herpetic eruptions.

The following diagram of Scott (1955) nicely represents infection with herpes simplex:



### Virus Characterization

Rivers et al. (1929) were the first investigators to show definitely that characteristic cytologic lesions caused by the virus occur in tissue cultures of the rabbit cornea.

The size of the virus, according to the American Public Health Association (1956), is from 90 to 213 millimicra in diameter. According to the electron microscope studies of Coriell et al. (1950), the bodies appear rounded with unequal density, a more opaque central area being present in all cases. Vesicle fluid of 12 hours, and never more than 48 hours, contained numerous inclusion bodies. Purulent vesicles were frequently negative.

Ackermann et al. (1952) investigated the intracellular distribution of herpes simplex virus in embryonic liver. They found that 80 per cent of the virus was found in the cytoplasm, not combined with mitochondria; they advanced the concept that liver mitochondria functions in the development of the virus.

Burnet and Lush (1939), Haywood (1949), Hunt (1954), and others, have found that strains of the virus are uniform in their serologic behavior, no antigenic differences having been found even in strains of widely different origin. Jawetz et al. (1955) studied eight strains and found significant differences antigenically between two of them.

### Neutralization and Tissue Culture Studies

Sternberg (1892) established the neutralization principle with vaccinia. In his words: "The result of the experiments made is, therefore, very definite, and shows that the blood serum of an immune calf con-

tains something which neutralizes the specific virulence of vaccine virus, either bovine or from humanized lymph-crust from the arm of a child."

Zinsser and Tang (1929) performed neutralization tests by injecting mixtures of serum and virus IC into rabbits, with human encephalitic convalescent sera. Andervont (1931) discovered that the white Swiss mouse was susceptible to herpes simplex when given IC, and this led the way for neutralization studies in mice. Weyer (1932) also utilized the white mouse in neutralization studies with IC inoculation. The virus material came from the brains of mice that had died four to five days after inoculation.

Parker and Nye (1925) were the first investigators to grow herpes simplex in tissue culture, using hanging drop cultures of rabbit testis with added plasma. They stated: "It may be that the virus in growing kills or injures the fibroblasts." One culture was kept during 15 transfers for 54 days. Gildemeister et al. (1929) confirmed the ability of the virus to propagate in the presence of rabbit testis; they were able to effect 22 transfers.

Maitland and Maitland (1928) developed the suspended cell culture technique using vaccinia in fowl kidney suspended in Tyrode's solution and fowl serum. Andrewes (1930) used a modification of Maitlands' technique with minced rabbit testis to culture herpes simplex. He tested for the presence of virus by intradermal inoculation of rabbits. Moreover, he observed that if immune sera was used in the culture rather than normal serum, the virus failed to grow and there were no inoculations. Serum in a 1:3 dilution invariably protected against undiluted virus.

Cheever (1939) employed agar slant cultures of chick embryo. He noted that fresh cultures allowed him to passage virus indefinitely, whereas those four days or older failed to survive. During the same year, Burnet and Lush (1939) adapted herpes simplex to grow on the CA membrane of the developing hen's egg. Virus was then titrated by the pock-counting technique. They found that highly diluted virus maintained a constant titer for at least 24 hours. An equilibrium was reached from two to four hours after the immune serum was added to the virus on the membrane. For some time after this union had been reached, it was reversible. Rabbit serum inactivated virus more quickly than did human sera. Shaffer and Enders (1939), Anderson and Hamilton (1949), Buddingh et al. (1953), Coetzee (1955), and others likewise employed the CA membrane, pock-counting technique.

Jawetz et al. (1952) used an egg-adapted strain of herpes simplex and performed neutralization studies by injection of virus-serum mixtures into the yolk sac. They claimed that this was less sensitive but more reliable than the CA membrane technique. This test



was able to distinguish a tenfold dilution of antibody concentration in the serum.

Carrel (1913) designed a flat-walled flask that was circular, for the maintenance of cultures. Gey (1933) largely improved upon the method of Carrel and developed the modern roller tube method of culture. He utilized the entire surface of the tube for growth of tissue cells implanted upon it.

The work of Enders (1949) in particular has been outstanding in giving impetus to the methodology of tissue culture, including herpes simplex. This investigator demonstrated the cytopathogenic (CP) effect of polio virus on human tissue cultures from parts of the organism outside the central nervous system. Together with others Enders (1954) modified Maitland's medium and also that of Carrel and Gey. In the latter technique, they planted small fragments of tissue on the inner wall of a test tube in a thin layer of plasma. This was then clotted by an extract. A small amount of liquid medium was added and the tube stoppered. After cellular outgrowth occurred, the virus inoculum was introduced.

Stulberg and Schapira (1953) grew herpes simplex and influenza A viruses on lung and cardiac tissues. They defined the fibroblast as the cell type most easily grown in vitro and maintained in continuous passage. It was called a fibroblast because of close resemblance to appearance of loose connective tissue fibroblasts. Nearly all tissues gave rise to these fibroblasts, but when cultured from different organs they attained differentiating properties.

Enders (1954) defined viral cytopathogenicity as the "capacity to induce any demonstrable departure from the normal, either in the morphological or functional properties of cells." He classified CP effects into three groups on the basis of morphology: (1) rounding of cells or irregular, bizarre cell outlines; granulation of cytoplasm, swelling of cells, swelling of the nucleus, pyknosis, fragmenting of chromatin in the cytoplasm, cell death, and disintegration, (2) formation of inclusion bodies, (3) giant cell formation or formation of cells into syncytial masses. Changes of group 1 could be caused by noxious agents alone. The age of the donor tissue influenced the CP effect. Environmental factors were considered important in enhancing or suppressing CP effect. Herpes simplex was said to cause formation of giant cells, as well as the changes of groups 1 and 2.

Bickerstaff (1953) was the first to grow herpes on epithelial cells and fibroblasts in tissue culture from the skin and amniotic membrane of chick embryo. He used the roller tube technique of Carrel-Gey and consistently observed CP effect with virus dilutions up to  $10^{-3}$ . This author noted that infected tubes lost their appearance of parallel rows of cells and showed bizarre forms, first among the peripheral cells and

later extending throughout the entire growth. The nuclei then became pyknotic, the cytoplasm fragmented, and nuclear remnants that were dark-staining solely remained.

Sosa-Martinez et al. (1955) reported on the propagation of herpes virus in rabbit kidney tissue cultures in roller tubes. They performed neutralization tests in tissue culture. The final virus-serum mixture contained 100TCD<sub>50</sub> of virus per 0.1 ml. Mice were observed between the third and fifth day. The mean titer of virus was  $10^{-2.9}$  with this method; after the fifteenth passage, it was  $10^{-3.7}$ .

A number of investigators have utilized complement fixation methods to determine antibody status of herpes simplex. Until fairly recently, most efforts to develop a good antigen were only partially successful. Kraus and Takaki (1925, 1926) succeeded in fixing complement using an antigen of rabbit brain with human and rabbit sera. But Gay and Holden (1931) were unable to confirm these results. Sosa-Martinez and Lennette (1955) believed the failure of some investigators to get complement fixation was due to the nonspecific and anticomplementary activity of crude rabbit brain suspensions and rabbit serum. However, Bedson and Bland (1929) and Brain (1932) were able to develop a successful CF antigen. They used a suspension of guinea pig pads. Brain stated that neutralizing antibody is higher in herpes simplex than is complement fixing antibody; the former method was perhaps more sensitive.

Afzelius-Alm (1951) used virus infected mouse brain and chorioallantoic membrane of chick as CF antigen; he considered the CA pock neutralization method to be superior to the CF test. Dudgeon (1950) used embryonated hen's egg as the source of this antigen; he was unable to detect a rise in CF antibody in serum on the fourth day of the acute phase of eczema herpeticum, nor on the 21st day. He therefore recommended the neutralization test. Holzel et al. (1953) made a study of CF antibody at different ages. These workers prepared antigen from the chick CA membrane. Although the CF antibody followed the same trend as neutralizing antibody, they found that the former disappeared earlier, perhaps because the latter was less sensitive than the neutralization technique in the detection of minute amounts of antibody.

Sosa-Martinez and Lennette (1955) examined 131 serum specimens from 72 people in whom herpes simplex infection was suspected clinically. They performed both the neutralization and CF tests. An egg-adapted strain of the virus was used. The CF antigen was found to be best when it came from the yolk sac, especially from the membrane instead of fluid. All portions of the embryonated egg were found to be satisfactory, but the virus was distributed in higher concentration in the yolk sac. The test virus was a



20 per cent suspension of infected mouse brain in 10 per cent normal rabbit serum broth. Serum-virus mixtures were inoculated IC into two- to four-day-old mice and observed for 14 days. Their results showed that CF antibody was rarely found in the absence of neutralizing antibody. But the reverse obtained in six cases. It was later shown that the neutralizing antibody appeared earlier in the acute phase than did the CF antibody.

### Summary

The virus of herpes simplex is believed to be an ancient parasite of man. It causes many diseases, most of which are mild in nature. Occasionally, however, the virus overwhelms its host. Herpes simplex is manifested in two forms, primary and recurrent.

Primary infection usually occurs between ages of one and three, rarely in adults. Before the age of one, as a rule, the infant is protected by maternal antibodies. The most common type of primary infection is gingivostomatitis. Overt primary infection is seen in only 15 per cent of cases; 85 per cent of infections are sub-clinical.

The greatest percentage of recurrent infection, again, is subclinical. Circulating antibodies are found after primary infection, although their exact role has not yet been defined. Recurrent herpes simplex is called forth with incitants, both physical and mental. It is not known with certainty where the virus is harbored in recurrent infections.

Some authors have indicated that antibodies against herpes simplex have an all-or-none character. Others have shown that this may only appear so due to the method of testing.

The virus was cultured as early as 1925 in rabbit testis tissue culture. Later, rabbit corneas and other tissues were employed. Within recent years, HeLa cell, rabbit kidney, and chick embryo tissue cultures have served as virus substrates.

The neutralization test has been used by many investigators intracerebrally in rabbits and mice, on the CA membrane of chick, and, recently, in roller tube tissue cultures. Complement fixation tests have been received with less favor in the past because of the difficulty in finding a good antigen. This obstacle is being overcome, and results now appear comparable to those secured with neutralization methods.

Many problems remain in the epidemiology of herpes simplex. Surveys have been made of the antibody status against the virus using various techniques. None has been attempted in tissue culture.

The author has begun research on the assessment of the neutralizing antibody status, among six pediatric age groups, against herpes simplex in chick embryo tissue culture (roller tube method). These studies will be correlated with the complement fixation

method. Thus far, optimal requirements for CETC maintenance and growth and virus maintenance and growth have been defined. A total of 140 sera have been drawn from the University of Kansas Medical Center hospitals and clinics. These will be the basis of the proposed study.

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Bad driving conditions prevailed in less than 15 per cent of the fatal highway accidents in the U. S. in 1956.

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Twenty-seven per cent of all drivers involved in fatal auto accidents in the United States last year were under 25 years of age.



## THE KANSAS PRESS LOOKS AT MEDICINE

### MAKE HASTE SLOWLY

Strong opposition is developing against a proposed law which would have the federal government through the social security system, pay for hospital and other medical costs incurred by people eligible for social security benefits.

Organizations which have gone on record against this comprise a long and diverse list—including, for

example, the American Farm Bureau Federation and the American Medical Association. And the opposition is based solidly on principle—that the proposed legislation amounts to compulsory insurance for those affected; that it would inevitably be extended to other groups, and that it could very well be the entering wedge to eventual socialized medicine—the hope of advocates of socialism in the United States. . . .

Here is a matter where wisdom and reason demand that we follow the old adage and make haste slowly. The potentialities of the proposed bill, and the scope of the precedents it could establish, are staggering and dismaying.—*Goodland Herald, January 2, 1958.*

## DEATH NOTICES

### JOHN ROSS CAMPBELL, M.D.

Dr. J. R. Campbell, 68, physician in Pratt and member of the Pratt County Medical Society, died on December 19, 1957. During more than 30 years of practice, Dr. Campbell had served medicine in various capacities, as one of the founding directors of Blue Shield, as councilor of the Kansas Medical Society, and in several offices in his county group.

A graduate of the University of Kansas School of Medicine in 1915, Dr. Campbell began practice in Coates and remained there until he entered the Army during World War I. He then moved to Pratt and practiced there until results of a stroke suffered in 1951 required his retirement.

### VERNON MELVIN WINKLE, M.D.

Dr. Vernon M. Winkle, 56, director of local health services for the Kansas State Board of Health, died at a Topeka Hospital on December 31, 1957, after having suffered a stroke. Dr. Winkle was graduated from the University of Nebraska College of Medicine in 1929 and later obtained a master's degree in public health from Vanderbilt University. He maintained a private practice in Norfolk, Nebraska, before moving to Topeka 16 years ago to enter public health work. Dr. Winkle was a diplomate of the American Board of Preventive Medicine.

### ALMONTA DEEVER HAYS, M.D.

An 85-year-old Cherokee physician, Dr. A. D. Hays, died at the Wadsworth VA Hospital on

December 20, 1957, after an illness of five years. He had been an honorary member of the Crawford County Society since 1940. Dr. Hays received his medical education at the College of Physicians and Surgeons, Baltimore, and came to Kansas in 1904, remaining here except for service in the Army Medical Corps during World War I. Active in civic affairs, he served a number of terms on the Cherokee city council and for three decades on the Cherokee school board.

### WALTER NEWTON MUNDELL, M.D.

A physician who had been an honorary member of the Reno County Society since 1949, Dr. W. N. Mundell, 77, died at Grace Hospital, Hutchinson, on January 2 after an illness of two weeks. He had retired from practice in 1953, after having maintained an office in Hutchinson since 1914. During World War I he served overseas with the Army Medical Corps.

### HENRY BRADLEY SULLIVAN, M.D.

Dr. H. B. Sullivan, 61, an active member and past president of the Johnson County Medical Society, died at Bethany Hospital, Kansas City, on January 17. He had practiced in Shawnee since his graduation from the University of Kansas School of Medicine in 1920. Dr. Sullivan was active in civic affairs, had served as city treasurer of Shawnee, and had held positions on the boards of education in both Shawnee and Mission. His son, Dr. H. B. Sullivan, Jr., was associated with him in practice.



## COUNTY SOCIETIES

"Indications and Contraindications for Psychiatric Hospitalization" was the subject of a panel discussion comprising the program for the January 6 meeting of the Shawnee County Medical Society in Topeka. Dr. Paul E. Feldman served as moderator with the following as participants: Dr. W. S. Simpson, Dr. H. V. Williams, Jr., Dr. John A. Grimshaw, Dr. R. B. Forman, Dr. Thomas B. Stage, Dr. Robert H. O'Neil, Dr. P. W. Thompson, and Mrs. Kay Zurbuchen.

Members of the Sedwick County Society entertained their wives at a dinner meeting at the Lassen Hotel, Wichita, on January 10. An economist, Dr. Arthur Smith, Dallas, was speaker of the evening. Dr. E. S. Brinton was installed as president for 1958.

Two radiologists, Dr. Peter E. Hiebert and Dr. Galen M. Tice, Kansas City, presented the program at the January 21 meeting of the Wyandotte County Society. The subject of the discussion was "Radiation Protection in Diagnostic X-ray."

Dr. Forrest D. Taylor is serving as president of the Clay County Society this year. He is assisted in administering the affairs of the group by Dr. George W. Bale, vice-president, and Dr. Carl H. Ruff, secretary-treasurer.

Members of the Saline County Society were hosts at a meeting of the Golden Belt Medical Society at Holiday Inn, Salina, on January 9. A panel discussion on acute abdominal disease was presented by Dr. Charles S. Joss, Topeka; Dr. Robert T. Cotton, Topeka; Dr. Donald D. Dieter, Salina; Dr. Marion C. Pearson, Concordia, and Dr. Roger K. Wallace, Manhattan.

Officers of the Marshall County Society, elected at a meeting held last month, are: president, Dr. Donald M. Diefendorf; secretary-treasurer, Dr. R. M. Thomas; delegate, Dr. J. W. Randell; alternate, Dr. H. H. Haerle.

Dr. William F. Roth, Kansas City, was elected president of the Wyandotte County Society for 1958 at a meeting held last month. Other new officers include Dr. Hubert M. Floersch, vice-president; Dr. M. R. FitzPatrick, secretary, and Dr. Wray Enders,

treasurer. Dr. William P. Williamson was chosen for a three-year term on the board of censors.

A film, "The Medical Witness," was shown at a joint meeting of the Harvey County Medical Society and the Harvey County Bar Association at Newton on January 6. Discussion was given by Dr. Victor E. Chesky of Halstead, Dr. Harold M. Glover of Newton, Judge J. G. Somers and Mr. J. Sidney Nye.

Officers of the Republic County Medical Society, recently elected, are: Dr. Paul L. Beiderwell, Belleville, president; Dr. Perry U. Hunsley, vice-president, and Dr. Ernie J. Chaney, secretary-treasurer.

Dr. Rex C. Belisle, Hays, is serving as president of the Central Kansas Medical Society for 1958 with Dr. W. E. McAllaster of Russell as vice-president and Dr. Glen C. Hutchison, Hays, as secretary-treasurer.

The annual president's dinner of the Labette County Medical Society was held January 9 at the Parsons State Hospital and Training Center with Dr. Howard V. Bair, retiring president, as host. The following officers were elected for 1958: Dr. Hal Burnett, president; Dr. John White, vice-president, and Dr. Jacqueline Baumeister, secretary.

### Polio Reminder Cards

As part of its campaign to see that every person under the age of 40 receives immunization against polio, the American Medical Association has prepared two cards to be sent to patients to remind them of the necessity for shots. The cards may be obtained from the Public Relations Department, A.M.A., 535 North Dearborn Street, Chicago 10, Illinois, without charge.

Card A may be used for a patient who has not discussed the matter with his physician. "As your doctor," it begins, "vitaly concerned with your health, I feel it my duty to encourage you to become immunized against poliomyelitis." The suggestion is made that the patient arrange for shots.

Card B, to be sent to a patient as a reminder for his third shot, carries the words, "It's time for your third polio shot," in large letters. In smaller type is the message, "Remember—two shots of Salk vaccine give you only partial protection against polio! For maximum protection you need all three shots. Don't press your luck. Get your final inoculation now."

Orders should clearly specify the number of each style required.

## BOOK REVIEWS

*May's Manual of Diseases of the Eye. 22nd edition. Revised and edited by Charles A. Perera, M.D. Published by Williams and Wilkins Company, Baltimore. 518 pages. Price \$6.00.*

This 22nd edition of the original *May's Manual of Diseases of the Eye* is edited by Dr. Charles A. Perera, associate clinical professor in ophthalmology, College of Physicians and Surgeons, Columbia University, New York; attending ophthalmologist, Presbyterian Hospital, New York; consulting ophthalmologist Vassar Brothers Hospital, Poughkeepsie, New York.

This is a compact, informative manual without excessive detail, but with sufficient discussion to make the work meaningful.

The first paragraph in the book is worth quoting verbatim: "Ophthalmology is a branch of general medicine and surgery from which, in practice, it cannot be entirely separated. The examination of the eye does not mean merely the investigation of an isolated organ, but the examination of the patient with special reference to the organ and its functions."

For physicians in general practice the first 13 chapters contain, in addition to a general description of the eye and its examination, the ordinary extra and intra-ocular pathological manifestations that one meets in ordinary office practice. While the latter part of the book is more specialized, it does serve as a ready reference manual for a busy office practice.

Doctor Perera should be congratulated on this excellent revision, and for keeping available this most practicable book for general practitioners and medical students.—J.E.H.

## ABSTRACTS FROM CURRENT LITERATURE

### **Rolicton in Heart Failure**

*Amisometradine (Rolicton) as an Oral Diuretic in Congestive Heart Failure. Douglas, A. H.; Samuel, P.; Wagner, W. P., and Gubernick L., New York J. Med. 57:3631 (Nov.) 1957.*

The authors studied the effects of amisometradine (Rolicton) on 54 patients with congestive heart failure. Of these, 26 were ambulatory (Class 3) and 28 were hospital cases (Class 4). Ages ranged from 14 to 88.

Results were classified as good, fair, or poor as determined by weight loss, need for injection of a

mercurial diuretic, and response of symptoms and signs of congestive failure.

As determined by these standards, the effects of the medication were found to be good in 61 per cent, fair in 20 per cent, and poor in 19 per cent of the patients. In Class 3 cardiacs treated with relatively small doses, results were good in 52 per cent, while in Class 4 cardiacs treated with maximum tolerated doses, results were good in 68 per cent. Two patients with marked anasarca, unresponsive to sodium restriction, digitalization, ammonium chloride, and meraluride, developed diuresis when given 4.0 Gm. of amisometradine in conjunction with the mercurial.

While the mercurials have remained the most valuable of the diuretic agents, their use may be complicated by various undesirable effects. When given by injection, they produce peaks of diuretic activity with reaccumulation of sodium and water between the injections. Recognition of the limitations of mercurial diuresis has stimulated investigative work directed toward the discovery of nonmercurial drugs which could be used to supplement their effect when necessary or to substitute for them.

These investigators found amisometradine an effective and safe oral diuretic. It can be used to supplement the effect of a mercurial, to reduce the need for parenteral therapy, and to substitute for a mercurial where use of the latter is contraindicated. In mild congestive failure, 0.4 Gm. twice a day may be adequate for maintenance of a dry weight. With more persistent cardiac failure the dose should be increased to the point of nausea. Most patients in this study were able to tolerate 1.0 Gm. four times a day without distress.

No renal, hepatic, or hematologic complications appeared in this series, nor was there evidence of refractoriness to the drug.

### **New Journal in 1958**

*Arthritis and Rheumatism* is the name of a new journal which will be published for the first time early in 1958 under the auspices of the American Rheumatism Association. It will appear bimonthly, starting with a January-February issue. Secretary of the organization is Dr. Edward F. Hartung, 580 Park Avenue, New York 21, New York.

The journal will cover the field of connective tissue disorders, in particular rheumatoid arthritis, osteoarthritis, rheumatic fever, gout, the so-called "collagen diseases," and nonarticular rheumatism. Special departments will include news, correspondence, editorials, progress reports, and book reviews. The publication committee hopes that the journal will be of interest to specialists in rheumatic diseases, internists, orthopedic surgeons, research workers, and all practitioners with a special interest in these diseases.



### Council Screens Foreign Graduates

After nearly three years of planning, the Educational Council for Foreign Medical Graduates has placed an "open for business" sign on the door of its offices in Evanston, Illinois.

The council, which will carry out a detailed and comprehensive program for evaluating foreign medical school graduates, has offices in the Orrington Hotel in Evanston. The executive director is Dr. Dean F. Smiley, Chicago, former secretary of the Association of American Medical Colleges.

It was decided three years ago that some form of evaluation service should be established within an independent agency whose affairs would be directed by a board of trustees designated by four cooperating organizations, the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States. For the next two years, the council will be supported by the four sponsoring agencies, the Kellogg Foundation, and the Rockefeller Foundation.

The council, incorporated in the State of Illinois, will be administered by a 10-member board of trustees—two representatives from each of the four sponsoring agencies and two persons representing the public at large, one named by the U. S. Department of Defense and the other by the U. S. Department of Health, Education, and Welfare.

Dr. Smiley said the council will distribute to foreign medical graduates around the world authentic information regarding the opportunities and difficulties involved in coming to the U. S. on an exchange student visa to take intern or resident training in a U. S. hospital, or coming on an immigrant visa with the hope of becoming licensed to practice.

The council will make available to properly qualified foreign medical graduates, while still in their own country, all information on how to obtain certification. This involves a three-way screening process:

1. The council will certify that a student's educational credentials have been checked and found meeting minimal standards—18 years of formal education, including at least four years in a bona fide medical school, but excluding hospital training.
2. The council will certify that the command of English has been tested and found adequate for assuming an internship in an American hospital.
3. The council will certify that the general knowledge of medicine, as evidenced by passing of the American Medical Qualification Examination, is adequate for assuming an internship in an American hospital.

The council also will provide hospitals, state licensing boards, and specialty boards which the foreign medical graduates designate with the results of

the three-way screening. It also will accumulate and publish each year complete data regarding the numbers and placement of foreign medical graduates in this country.

Dr. Smiley emphasized that the council will not serve as a placement agency either for interns or residents; it will not attempt to evaluate the teaching program or inspect or approve any foreign medical school, and it will not act as an intercessor for foreign medical graduates having problems under discussion by state boards of medical licensure or specialty boards.

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### New Exhibits in 1958

To reach more and more Americans with authentic up-to-date health information, the A.M.A.'s Bureau of Exhibits announces a number of major plans for 1958. First, a new exhibit titled "How We Breathe" will be ready for bookings after January 1, 1958. This exhibit will present a three-dimensional model of the organs involved in breathing—the nose, pharynx, larynx, bronchial tubes, and lungs. Other features include actual preserved human lungs; a unit to demonstrate the mechanism of breathing and the part played by the diaphragm and rib cage, and a section showing the exchange of oxygen from the lungs to the blood and carbon dioxide from the blood to the lungs.

Two other exhibits also are well along in the planning stages for next year: (1) the brain and nervous system, featuring a human brain embedded in plastic and (2) the endocrine system. Further details will be announced later.

Finally, small editions of the popular "Life Begins" exhibit are being built, incorporating most of the information in the large exhibits but displaying only one fetus embedded in plastic. Other fetuses in varying stages of development will be shown pictorially. This type of exhibit is lightweight and should prove attractive to medical societies far away from Chicago.

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### Pamphlet on County Societies

Replies to the questionnaires sent to county medical societies concerning their activities and programs have been tabulated and published in booklet form by the A.M.A.'s Council on Medical Service. The booklet—"1957 Nationwide Survey on County Medical Society Activities"—contains information on types of county medical society programs (such as emergency call systems or grievance committees), fee schedules, life insurance, attendance at meetings and dues. Copies will be sent to all county and state medical societies. Additional copies may be secured from the Council.



### Study of Patients' Complaints

The older patient in a small hospital is likely to have the fewest complaints about the quality and quantity of nursing care, according to a survey of patient opinion published recently in *Hospitals*, Journal of the American Hospital Association.

The survey, conducted by the Public Health Service with the cooperation of the American Hospital Association among nearly 9,000 patients in 60 general hospitals, shows what the patients regarded as omissions in nursing care.

The 60 hospitals participating were divided according to size in terms of average daily patient census; 100 to 199 in the first group, 200 to 299 in the second group, and 300 to 499 in the third.

"It was found that patients in the two smaller size groups reported the least number of omissions of nursing care—while patients in the 300 to 499 size group reported most omissions," the authors said.

"Of the total group of 9,000 patients, 33 per cent reported that all their needs were filled; only 24 per cent of the patients under 20 reported complete satisfaction with all their care; while 40 per cent of the patients 60 and over said that they had all their needs met."

One reason given by the authors for the number of unfilled nursing needs was the increase in treatments ordered for patients, with the resultant time spent in preparation and cleaning of equipment used in these treatments. Another reason was the time spent by the professional nurse in nonnursing activities, such as housekeeping, clerical duties and running errands.

"A professional nurse seldom has more than a few minutes during an eight-hour day to spend with each patient on the unit," the authors said. The average professional nurse spends only about 26 per cent of her time on activities with patients, they added.

Attitudes toward food, hospital environment and noise varied with the age of the patient, the survey showed. The older patient wanted a variety of food, easily digestible and attractively served, while the younger was more interested in the quantity of food and how filling it was.

The older patient was concerned with small details of comfort, such as "having his Kleenex at hand, having his venetian blinds drawn in a certain way," the authors said.

"The younger person seemed to be preoccupied with avoiding boredom. He was more active mentally and physically, and liked to have more people around him," the study showed.

Noise, especially from radio and television sets, bothered the older patient, while younger patients re-

sented being asked to turn off radio or television sets. While the older patient was annoyed by an excessive number of visitors, the younger liked more visitors than he was allowed.

Both the sex and the marital status of the patient also seemed to affect satisfaction with care, with men more satisfied than women, and married patients more satisfied than single, according to the article.

"In the hospitals studied, 35 per cent of the males reported that all their needs were met. The number of women who were completely satisfied was 29.7 per cent, excluding obstetrical patients, who as a group, were as happy as males.

"Among the single patients, nearly 28 per cent said that all their needs were met; while among the married patients, 34 per cent said that they were completely satisfied."

Age as related to marital status also seemed to affect the patient's opinion of his care. While single patients from 20 to 29 were more dissatisfied than married patients in the same age group, single patients from 30 to 39 were happier than married patients in the same group.

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### Healthful Winter Fun

How to live sensibly and still have a good time in cold weather is the way of life outlined in a new series of radio transcriptions the A.M.A.'s Bureau of Health Education made available to medical societies early in December. In the 13-program series "The Picture of Health," brief dramatizations of typical family life are presented—illustrating how far open the bedroom window should be at night or the kinds of food one should eat to stay healthy. Other subjects covered in the series include: general winter exposures; snow and ice hazards for pedestrians; frostbite and chilblains; skiing hazards; diet; driving; household procedures (such as temperature and moisture in the room). Dr. W. W. Bolton, Bureau associate director, serves as medical consultant.

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Miss Ruth Steinberg began duties on January 2 as associate professor in nutrition research at the University of Kansas Medical Center. She will be in charge of a program, now in its formative stages, designed to bring about a better insight into food research and to medical problems related to nutrition.

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In 1956, more than 8,000 pedestrians were killed by autos in the U. S.

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Jaywalking was costly in the U. S. in 1956—3,170 were killed.

## ANNOUNCEMENTS

Course on the Heart: The Acute Coronary Occlusion, February 24 and 25, University of Kansas Medical Center. Course on neurology and neurosurgery, February 26 and 27. Write Department of Postgraduate Medicine, 39th and Rainbow, Kansas City 12, Kansas.

Postgraduate conference offered by University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado, "Edema: Its Pathogenesis and Management," March 13-15.

Courses offered by New York University Postgraduate Medical School, 550 First Avenue, New York 16, New York: Anesthesiology: Endotracheal and Related Methods, March 24-28; Electrocardiography, March 17-21; Motor Anomalies of the Eye, Part I, March 3-8; Motor Anomalies of the Eye, Part II, March 10-14; Surgery of the Eye, March 24-29; Audiology, March 3-5; Neuro-Otolaryngology, March 6-8; Surgery of the Hand, March 12-22.

Creighton University School of Medicine, Omaha 2, Nebraska, offers postgraduate conference, April 8-10. First day devoted to practical clinical hematology; second day to rehabilitation procedures, and third day to practical office laboratory tests. Registration limited to 50.

Second annual postgraduate course in fractures and other trauma, Chicago Committee on Trauma, American College of Surgeons, 55 East Washington Street, Chicago 2, Illinois, April 16-19. Presented at John B. Murphy Memorial Auditorium, 40 East Erie Street, Chicago.

American College of Chest Physicians announces a resident loan fund to stimulate interest in postgraduate study of chest diseases. Eligible for annual loans up to \$1,000 are physicians who have completed an internship of one year. Maximum of \$3,000 to any one student. Three years allowed for repayment.

Three-day sectional meeting, American College of Surgeons, Des Moines Iowa, March 27-29, at Hotel Fort Des Moines. All physicians invited. Write the College, 40 East Erie Street, Chicago 11, Illinois.

### Rural Health Conference in March

Changing patterns in nutrition, health costs, medical care, dental health, and safety will serve as the focal point for discussion at the 13th national Conference on Rural Health to be held March 6-8 at the Hotel Heidelberg, Jackson, Mississippi. The conference is sponsored by the A.M.A.'s Council on Rural Health in cooperation with southern state medical associations and farm, educational, and allied organizations.

Highlights for Thursday and Friday include: a panel on nutrition, a skit depicting a family's visit to the dentist, presentation on a visit to the doctor's office with emphasis on the physical examination, a panel on safety, a discussion of what the patient expects from his doctor and the doctor of his patient, a panel on new developments in health insurance plans, a report on Mississippi's physician training and placement service, and the annual banquet.

The Saturday program will include: five presentations on outstanding achievements in rural communities: (1) health improvement association in rural Illinois; (2) Oklahoma's visiting nurses service; (3) a 4-H Club safety lifting program; (4) 4-H Club work in Nebraska, and (5) Ohio's preceptorship program. Also a summary will be given by Mrs. Charles W. Sewell of Otterbein, Indiana, member-at-large of the advisory committee to the Council.

#### CLASSIFIED ADVERTISEMENTS

FOR SALE—X-ray machine, General Electric, 100 MA with fluoroscope. One tube. In central Kansas. Write the JOURNAL 2-58.

POSITION WANTED—locum tenens or position as assistant to established man. Available from early January through June. Excellent general training, married, have family. Prefer location in or around Kansas City area. Recent graduate. Write the JOURNAL 1-58.

Progressive, growing group of six physicians would like to contact an obstetrician, pediatrician, internist, and general practitioner who have completed military obligations. Very prosperous central Nebraska town under 20,000 offers unlimited future possibilities. Excellent salary first year, attractive partnership thereafter. Write the Journal 3-58.

FOR SALE—100 MA Westinghouse x-ray unit and FCC approved Short Wave Diathermy, like new and at a fraction of original cost. Write the Journal 4-58.

## Annual Meeting

### KANSAS MEDICAL SOCIETY

Kansas City, Kansas

May 5-7, 1958

**Make Hotel Reservations Now**

# *The* JOURNAL *of the* KANSAS MEDICAL SOCIETY

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Volume LIX

MARCH, 1958

No. 3

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## The Medical Center

### *A Resume of Progress and a Look at the Future by the Dean*

It is a pleasure once more to be able to write a prefatory statement for the Medical Center issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY. The year just past proved to be an active one, and the year immediately ahead promises to be one of continued growth and progress. The following are some statements of fact relating to the state of the Medical Center.

*Personnel.* The past year saw changes in faculty, both loss and gain. On January 1, 1957, Dr. Leonard Peltier joined us as professor and head of the Section of Orthopedic Surgery. Dr. Peltier came to us from the University of Minnesota, where he had been acting head of orthopedic surgery. On July 1, Dr. L. R. C. Agnew took up his appointment as associate professor of the history of medicine and chairman of the Department of the History of Medicine. Dr. Agnew is a medical graduate of Glasgow University and a diplomate of the American Board of Pathology. He came to us from Harvard, where he obtained his master's degree in the history of science. We are extremely fortunate to have him, a physician, scholar, and professional historian, to continue the traditions of the department ably headed in the past by Dr. Logan Clendening and Dr. Ralph Major.

With a great sense of loss, we report the resignations of Dr. Harlin Firminger, Dr. Chauncey Bly, Dr. Frank Mantz, and Dr. Perry Morgan. On July 1, Dr. Firminger, a member of our faculty for six years, resigned to become professor of pathology and chairman of the Department of Pathology in the University of Maryland School of Medicine. At the same time Dr. Mantz entered the private practice of pathology in Kansas City, Missouri, and Dr. Bly took up his duties in pathology in Rochester, New York, from which place he had joined us six years ago. On January 1, Dr. Perry Morgan resigned his position as as-

sociate professor of microbiology to become director of the Community Blood Bank of Kansas City.

At present Dr. Kurt Reissmann is serving as visiting professor of physiology in the University of the Philippines under the sponsorship of the China Medical Board. This appointment does great honor to Dr. Reissmann and to the University of Kansas as well.

On June 1, Mr. Robert Molgren, hospital administrator for five years, resigned to take up duties in a similar capacity at St. Luke's Hospital, Kansas City, Missouri. Mr. Molgren served in the most trying days of the center, in the midst of its greatest expansion. Capably he stabilized its budget and its personnel. The center owes him a tremendous debt of gratitude.

Coincident with his leaving, the organizational pattern of the center was revised. Similar positions of associate dean and associate director were created, the former occupied by Dr. Vernon Wilson and the latter by Mr. Russell Miller. Mr. Miller is probably known to most of you. He is a native of Iowa, a graduate of Central College, and has his master's degree in hospital administration from the University of Minnesota. Because he has been with us in an administrative capacity for four years and has gained the confidence and affection of all our personnel, the transition in administration was accomplished smoothly.

*Dr. Edward H. Hashinger.* At the time of the appearance of this issue, Dr. Edward H. Hashinger will have retired from his faculty position as professor of medicine and gerontology and head of the latter department. I know of no one who has given so unstintingly of his time, energy, and talents for the university and for medicine. He has been a stalwart for this medical school for 37 years. He has passed through all its faculty ranks, he has served as commanding officer of its military unit, he has served as



its acting dean; in short, he has done everything. He and his lovely lady have both earned our Medal of Honor.

*Facilities.* In September the long-needed library unit of the Medical Center was dedicated formally. This magnificent addition (we believe it to be one of the finest of its kind anywhere) paves the way for the ultimate consolidation of the medical school on the Kansas City campus. By action of the Board of Regents, the library is now named permanently the *Clendenning Medical Library*, in honor and memory of Dr. Logan Clendenning, physician, teacher, scholar, bibliophile, and litterateur.

In December, the new addition for Postgraduate Medical Education was completed and occupied. This unit provides centralized offices for the department immediately proximate to the scene of its major activities, Battenfeld Auditorium. Your postgraduate activities will be enhanced greatly by this addition.

On January 29, Kansas Day, the deed to the Maccohaque School property, just south of Olathe Boulevard, was recorded in Wyandotte County Courthouse in the name of the state of Kansas. Thus culminated a five-year effort. Funds for its acquisition were provided in the legislative session of 1957; the appropriation, to provide vitally needed land for expansion of the campus, represented the first major land purchase of the state for the medical school campus.

On May 25 we plan to dedicate the Children's Rehabilitation Unit. This facility was made possible by the joint efforts of many, primary among them the Society of 40 and 8 of Kansas and the Kansas Society for Crippled Children. The donors of this building are legion; we are deeply grateful to them all.

By the time this appears, the connecting tunnel between the Psychiatry Building and the Student Center-Continuation Study Building will have been completed. This vital link will increase enormously the utilization of Battenfeld Auditorium for teaching purposes.

The planning appropriation for our building to house the departments of anatomy, physiology, and

biochemistry is now in hand. Hopefully, next year's Medical Center issue will contain its preliminary plans.

Lastly, I would mention a significant gift of property. In November, Mr. and Mrs. Kenneth A. Spencer, loyal and devoted alumni of the university, gave to the Kansas University Endowment Association their lovely home situated on two acres of land in Mission Hills, the same to be used as the official residence for the dean of the School of Medicine. For this magnificent gift, I am officially and personally grateful. In it, our alumni and Kansas medical colleagues will always be welcome.

*Budget.* All of us are proud to report that the finances of the Medical Center are in balance. Next year's budget will be approximately eight million dollars, of which five will be represented by earned income, grants, and gifts. The three million dollars represented by legislative appropriations is exactly what was requested. Our presentations were accepted and dealt with generously by the governor and the legislature. We intend that their expression of confidence will be returned with interest in further growth in stature and quality of our program.

I regret that limitations of space do not permit more extensive comments about these matters. The success of this school depends upon many factors: the adequacy of its facilities, the capacity of its students, and the excellence of its faculty. We are proud of all three. In particular, we are proud of the enthusiasm and energy of the faculty displayed in our postgraduate effort, under the one whom we consider to be the dean of all postgraduate educators, Dr. Mahlon Delp.

The relationships enjoyed by this medical school with the Kansas Medical Society are, I believe, the best enjoyed by any school in this country with its society. For all of the help, the support, the encouragement, and the interest of the Society we are extremely grateful.

All of us trust that this issue will provide something of interest for each of you. Your comments and suggestions will be appreciated.

W. Clarke Wescoe, M.D.

There is no reason to make either books or education easy, any more than tennis or football is easy. . . . Books require a certain amount of hard work and practice and, like sports, they can be both a challenge and a delight.

—Gilbert W. Chapman

# Exchange Transfusions

## *Experiences at University of Kansas Medical Center Over a Two-Year Period*

DON S. OVEREND, M.D., *Springfield, Missouri*

The value of exchange transfusion in hemolytic disease of the newborn has been convincingly demonstrated since the introduction of this procedure in the early 1940's. Exchange transfusion is performed to prevent kernicterus and the brain damage which occurs in its presence. Kernicterus is associated with high serum levels of indirect bilirubin. Waters and co-workers<sup>1</sup> have demonstrated by spectrophotometric and biochemical studies that the yellow pigment staining the tissues of the brain stem in autopsied cases of kernicterus is bilirubin. The *in vitro* studies of Day<sup>2</sup> have shown that indirect bilirubin is a protoplasmic poison. Indirect bilirubin prepared commercially depresses the oxygen uptake of various tissues; oxidation of the commercial bilirubin or the addition of cytochrome C to the preparation renders it non-toxic. In the body, indirect bilirubin is detoxified by conjugation with glucuronic acid and subsequent conversion to direct bilirubin. Direct-reacting bilirubin has not been shown to have any toxic effect.

When indirect bilirubin accumulates in the body of the newborn infant, kernicterus is a threat. While there is a statistical correlation between high levels of serum indirect bilirubin and kernicterus, the exact level at which this occurs is not known. Hsia and others<sup>3</sup> have shown that the risk of kernicterus is greater as the indirect bilirubin level exceeds 20 mgm./100 ml. This is an arbitrary figure and may be subject to revision as more cases are studied. Some workers feel that in premature infants the bilirubin concentration at which kernicterus is statistically uncommon is considerably lower than 20 mgm./100 ml.

There are a number of conditions which may cause hyperbilirubinemia in the newborn period. Hemolytic disease of the newborn due to incompatibilities in the Rh, ABO, and other blood-group systems is a well-known entity and needs no further discussion. The reader desiring authoritative information on hemolytic disease of the newborn is referred to the recent review articles by Allen and Diamond,<sup>7</sup> Neel,<sup>8</sup> and Wheeler and Ambuel.<sup>9</sup> Sepsis occurring in the newborn period may cause elevation of the indirect bilirubin. The septic process may be due to a bacterial invader, congenital syphilis, toxoplasmosis, or cytomeg-

alic inclusion body disease. Any of these conditions can give a clinical picture indistinguishable from erythroblastosis due to blood-group incompatibility. Each may be diagnosed by appropriate laboratory studies.

Premature infants, particularly those with respiratory difficulty, tend to have high levels of indirect bilirubin in the absence of demonstrable blood-group incompatibility or of sepsis. C. A. Miller and Reed<sup>10</sup> have shown that premature infants in respiratory Group III of Miller<sup>11</sup> more frequently develop hyperbilirubinemia which is not associated with blood incompatibility or sepsis than do term infants and premature infants in respiratory Groups I and II.

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### **Indications for this life-saving procedure are reviewed and the technique utilized at the University of Kansas Medical Center is described.**

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Whatever the cause of the hyperbilirubinemia, when indirect bilirubin reaches a concentration which threatens kernicterus, a prompt adequate exchange transfusion is the only available means of preventing damage to the brain from kernicterus.

The technique of exchange transfusion as practiced at the University of Kansas Medical Center has been developed from procedures employed at many medical centers with some modifications made by personnel here. It is presented in some detail for the reader who may desire a point of reference.

*The Exchange Transfusion Team.* This team consists of the transfusionist, an assistant physician, a nurse, and a recorder. An operating room is the location of choice because of the need for aseptic technique and also for easy availability of special equipment.

*Blood.* The amount of blood to be used in the exchange procedure is determined as being two times the circulating blood volume, which is approximately 16 per cent of the body weight in kilograms. The blood chosen should be fresh (maximum time in storage, 24 hours) to avoid hemolysis and high levels of potassium. No distinction is made between blood

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from male and female donors. The blood is cross-matched by standard techniques. If the mother and infant are of the same ABO blood group, group-specific blood is chosen, otherwise group O blood is used. Rh negative blood is chosen if either the mother or the infant is Rh negative; otherwise, Rh positive blood is employed. Appropriate A or B group-specific substance is added before type O blood is given to a type A or B infant. The donor unit is cross-matched with maternal blood if possible. If maternal blood is not available, cross-matching is against the cord blood (second choice) or the blood of the infant (third choice).

In exchange transfusions of infants with jaundice complicated by anemia, the donor blood is concentrated by withdrawal of 50 to 100 cc. of plasma from the 500 cc. unit.

The blood is warmed to approximate room temperature immediately before use by immersion of the blood container in tepid water. Fenwal plastic blood containers (Fenwal Laboratories, Framingham, Massachusetts) are used at the University of Kansas Medical Center, and these require only 10 to 20 minutes of warming.

*Preparation of the Patient.* The infant is transported in a heated crib. Oral intake is withheld at least 4 hours prior to exchange or, if this is not possible, the stomach is emptied by gastric tube. The infant is restrained on a circumcision board and is well covered to prevent loss of body heat. Preparation of the sterile operative field is by usual techniques.

*Cannulation.* Those infants exchanged within the first 24 hours of life can usually be cannulated via the umbilical vein. The umbilical stump will remain in operable condition for 48 to 72 hours if kept in wet (saline) packs, and this procedure is started at birth in those infants for whom the possibility of later exchange exists.

Those infants transfused after the cord is no longer usable are cannulated via the greater saphenous or common femoral vein. The saphenous vein is exposed by a femoral cutdown, and if this structure is too small to be cannulated the femoral vein is used as second choice. The K-32 premature infant feeding tube (Pharmaseal Laboratories, Glendale, California) has been found to be most satisfactory for umbilical and femoral cannulation. This tube is furnished unsterile and is sterilized by immersion for one hour in benzalkonium chloride solution, 1:1000. The cannula is inserted well into the vessel (6 to 10 cm. in the cord and 10 to 15 cm. in femoral cutdowns) to assure its location in the vena cava. The cannula is secured into the vein by a firmly placed tie.

*The Transfusion Set.* We have somewhat simplified the technique of exchange transfusion by eliminating as much as possible all wettable surfaces and areas

of constriction and turbulence from the transfusion pathway. In the past, considerable clotting was encountered in three-way stopcocks and in needle hubs in the pathway. Needle hubs have been eliminated by the use of the all plastic feeding tube, and the need for three-way stopcocks has been eliminated by use of the Fenwal pressure-metering recipient set (HB282, Fenwal Laboratories, Framingham, Massachusetts). This unit provides a continuous non-wettable pathway from the blood container to the vein. Figure 1 illustrates the complete transfusion pathway. The outside surfaces of the recipient tubing are sterilized by immersion in benzalkonium chloride solution (1:1000). Syringes are washed after each filling in physiological saline containing 1.0 ml. heparin sodium solution per 1000 ml. saline.

*Procedure.* Blood is withdrawn and administered in 20 ml. increments. Very ill or premature infants are exchanged by 10 ml. increments. Withdrawal is usually done first, and the first specimen is retained for the determination of the pre-transfusion bilirubin concentration. Twenty (or 10) ml. are withdrawn, the syringe is changed, and a similar amount is administered. This is repeated until the entire amount of the exchange is completed. At each withdrawal or administration the recorder notes the time, amount, and running total.

At the completion of each 100 ml., 1.0 to 1.5 ml. of 10 per cent calcium gluconate is administered through the cannula. In very small infants, 1.5 ml. of calcium gluconate is given at each 50 ml. of exchange. Calcium gluconate is given cautiously with the assistant checking the apical pulse. Marked bradycardia is indication for slowing or discontinuing the calcium gluconate.

The transfusion procedure is done at a rate to occupy at least one hour and preferably 1½ to 2 hours from the first withdrawal of blood to the final administration or withdrawal. "Topping-off," the administration of a final additional amount of blood over the amount of the exchange, is not done at this

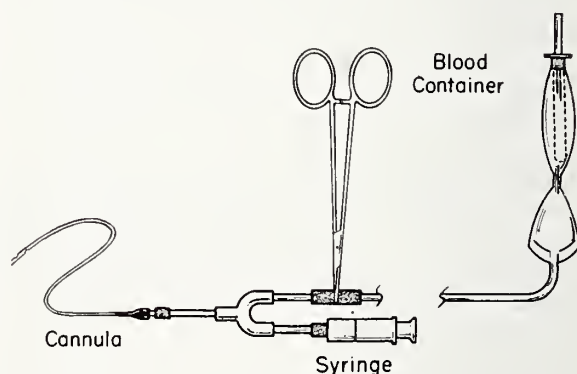


Figure 1



hospital. A portion of the final withdrawal specimen is retained for a determination of the post-transfusion bilirubin concentration.

Throughout the procedure the infant is carefully observed for cyanosis, for excessive irritability which may indicate impending tetany, and for vomiting. Oxygen by face mask is administered throughout the procedure in an attempt to assist the infant in oxygenating the desaturated donor blood. A suction machine and airways are always available. At the conclusion of the procedure the cannula is withdrawn and the operated vein is ligated. The skin is closed by usual surgical techniques.

**Post-Transfusion Care.** The infant is returned to the nursery immediately after exchange transfusion. The infant remains in a heated crib for two to four hours after transfusion, and feedings are withheld for four to eight hours, depending on the condition of the infant. Antibiotics are routinely given for 48 hours post-transfusion. Intramuscular procaine penicillin, 50,000 units, and streptomycin, 50 mg., are given twice daily unless some other antibiotic is indicated.

The concentrations of hemoglobin and bilirubin are checked the morning after exchange transfusion, and bilirubin determinations are continued until a definite downward trend is seen. The concentration of bilirubin 12 to 18 hours after exchange is usually somewhat higher than that immediately post-exchange, presumably due to the liberation of tissue bilirubin. If the bilirubin continues to rise after the first exchange transfusion, a second exchange transfusion is done when the indirect bilirubin again approaches or reaches 20 mgm./100 ml.

**Dangers of Exchange Transfusion.** Hypocalcemic tetany with convulsions, hypoxia, circulatory collapse, or cardiac arrest may occur during exchange transfusion. These most commonly occur in severely jaundiced or frankly kernicteric infants. In the series to be reported here, only one infant expired during transfusion. This infant had clinical signs of kernicterus prior to exchange. One other infant showed tetany during exchange which responded promptly to administration of additional calcium gluconate.

### Results of Exchange Transfusion

During the period of two years from July 1, 1955, to June 31, 1957, 46 exchange transfusions were performed at the University of Kansas Medical Center on 43 patients. The source, race, sex, and birth weights of these patients are recorded in Table 1. This table reveals that there is a comparable number of male and female infants. There is a preponderance of white patients, although the Department of Obstetrics at this hospital reports the ratio of Negro to white births to be 6:4. Seven of 43 patients are premature, the remaining 36 weighing more than 2,500 gm. at birth.

Nine of the patients reported here were referred from other hospitals, and the remainder were born at this institution. One additional exchange transfusion was performed on an infant with hemolytic phenomena and severe jaundice secondary to a large cutaneous cavernous hemangioma. This case has been excluded from the reported series.

The conditions prompting exchange transfusion included hemolytic disease of the newborn due to fetomaternal incompatibility of the Rh factor, or of the ABO blood groups, and in some cases without demonstrable incompatibility, the latter of which will be referred to hereinafter as idiopathic hyperbilirubinemia. Hemolytic disease due to Hr, Kell, or Duffy factors and sepsis were sought for but were not encountered. Rh incompatibility was demonstrable in 19 patients (44 per cent), ABO incompatibility in 12 patients (28 per cent) and idiopathic hyperbilirubinemia in 12 patients (28 per cent). A second exchange transfusion was required in three patients because of recurrence of high bilirubin concentrations. These three patients were all erythroblastotic because of incompatibility of the Rh factor.

Table 2 summarizes the results of exchange transfusion reported here. Four patients in the series expired; three of these were referred late from other hospitals when evidence of brain damage was already present. The fourth fatality occurred at 52 hours of age after exchange transfusion at six hours of age; death was the result of hyaline membrane disease complicated by marked emphysema and pneumothorax.

Table 1.

Distribution of patients\* receiving exchange transfusions at University of Kansas Medical Center, July 1, 1955 to June 30, 1957.

		No. of pts.	% of pts.
Sex	Male	21	49
	Female	22	51
Race	White	27	63
	Negro	16	37
Birth Weight	2500 Gm.	36	84
	2500 Gm.	7	16
Source	Born KUMC	34	79
	Referred	9	21

\*Total exchange transfusions 46; total number patients 43.

Table 2.

Results of exchange transfusions performed on 43 patients; all types of hyperbilirubinemia.

	No. of pts.	% of pts.
Satisfactory result	37	86
Unsatisfactory result	6	14
Survived with brain damage	2	
Expired	4	
Kernicterus	3	
Hyaline membranes	1	

Only one of the four deaths occurred during the exchange procedure.

Two patients in the series with clinical evidence of kernicterus have survived. One of these had idiopathic hyperbilirubinemia and is known to be brain-damaged. The other infant had erythroblastosis due to blood incompatibility of the Rh factor with evidence of kernicterus prior to dismissal from this hospital; no follow-up has been possible.

Brief summaries of the cases showing unsatisfactory results (death or kernicterus) are presented below; they demonstrate the importance of prompt recognition and early treatment of hyperbilirubinemia.

*M. B.* This infant was admitted to the University of Kansas Medical Center at 63 hours of age. The birth weight was 3,310 gm. Jaundice had been first noted at 34 hours. The mother's blood type was known to be Rh-negative, and a titer of anti-Rh substances of 1:8 was reported at 7 months gestation. At admission the hemoglobin was 12.4 gm./100 ml. The Coombs test was 4+, and the total bilirubin was reported from the referring hospital as 7.5 mgm./100 ml. At 80 hours the indirect bilirubin had risen to 34.1 mgm./100 ml., and an exchange transfusion was performed. At 88 hours of age the infant was noted to be lethargic. At 92 hours of age the indirect bilirubin had risen again to 26.1, and a second exchange transfusion was carried out. Generalized convulsions occurred at 94 hours, and the child expired on the 6th day after birth. Autopsy on this infant revealed kernicterus.

*R. P.* This infant was referred to the University of Kansas Medical Center and was 58 hours old on arrival. The birth weight was 3,450 gm. Jaundice had been noted two hours after birth. The maternal blood type was not reported. The admission hemoglobin was 11.5 gm./100 ml. The Coombs test was 4+ and the indirect bilirubin 28.7 mgm./100 ml. Anti-Rh sub-

stances were demonstrated. Exchange transfusion was performed at 61 hours of age. The infant was lethargic at admission, with a weak Moro response. Following transfusion the infant became progressively more lethargic, then comatose, and expired 66 hours after birth. Autopsy showed kernicterus and gross bilirubin crystals in the renal pelvis.

*I. H.* This infant was admitted to the University of Kansas Medical Center from another hospital at four days of age. The birth weight was 3,590 gm. Jaundice was first noted "shortly after birth." On admission the infant was extremely icteric, lethargic, and with a poor to absent Moro response. The hemoglobin was 11.0 gm./100 ml. The Coombs test was 4+. The maternal blood type was A, Rh-negative; the blood type of the infant was A, Rh-positive. Immune anti-Rh antibodies were demonstrated. Indirect bilirubin at admission was 19.4 mgm./100 ml. The infant was exchange transfused three hours after admission but expired during exchange. Autopsy showed generalized tissue staining and kernicterus.

*L. Mc.* This infant was born at the University of Kansas Medical Center. The birth weight was 2,825 gm. The mother was known to be Rh-negative; an anti-Rh titer of 1:16 was noted at the fifth month of gestation. The infant was pale at birth with a cord blood hemoglobin concentration of 5.0 gm./100 ml. and a concentration of indirect bilirubin of 2.0 mgm./100 ml. The Coombs test was 4+. The infant's blood was exchanged at six hours of age and the patient apparently did well except for rapid respirations. Eighteen hours after birth the infant developed spontaneous pneumothorax, which was relieved by constant suction of the pleural space, but the infant showed increasing respiratory difficulty and expired 52 hours after birth. Autopsy on this infant showed pulmonary hyaline membrane disease with emphysema. There was no evidence of kernicterus.

*E. A.* This infant had a birth weight of 1,088 grams. With the exception of episodes of apnea of 30- to 90-second duration, the neonatal course was uneventful until the third day when jaundice was noted. The indirect bilirubin at this time was 16.4 mgm./100 ml. Because of the small size of the infant, transfusion was withheld. On the seventh day the indirect bilirubin was 26.5 mgm./100 ml. and it was decided to proceed with exchange transfusion in spite of possible technical difficulty. The weight at this time was 980 grams. Exchange transfusion was performed without difficulty, utilizing the femoral vein. When this child was last observed (at 11 months of age), he was unable to sit without support and showed considerable incoordination of the arms; speech, however, was beginning to develop. It is difficult to know whether or not the present difficulties of this infant are related





Table 5

Indirect Bilirubin (mgm./100ml.)	Rh	A B O	Idiopathic Hyperbilirubinemia
0 - 5.0	●○○		
5.1 - 10.0	○○○○○○○	○○	
10.1 - 15.0	○		○
15.1 - 20.0	●●●	○○○○	○○○○○
20.1 - 25.0	○○	○○○○○	○○○○
25.1 - 30.0	●	○	●○
Over 30.0	●○		

○ = Good Result    ● = Kernicterus    ● = Expired

Table 5. Serum indirect bilirubin concentration immediately prior to exchange transfusion. The term "kernicterus" refers to infants surviving with brain damage.

frequently been cyanosis and edema of the operated extremity, but this has not persisted for more than 48 hours in any case. There have been no permanent undesirable sequelae as a result of cannulation of the femoral or saphenous vein in the patients reported here.

## Discussion

The physician who is responsible for the care of newborn infants should be constantly alert for the appearance of icterus during this period. Premature infants with respiratory difficulty must be particularly carefully observed. Once jaundice is clinically evident it must be promptly assessed quantitatively by laboratory determination of the serum indirect bilirubin. Clinical estimation of the severity of jaundice is totally unreliable. When the indirect bilirubin approaches the danger level, prompt exchange transfusion must be carried out or the immediate transfer to a transfusion-equipped facility must be arranged.

No one set of rigid criteria for exchange transfusion is applicable to all cases of hyperbilirubinemia. We have formulated a group of arbitrary criteria which we have found to be a useful guide in determining the need for exchange transfusion. These are based primarily on the work of Hsia and co-workers,<sup>4</sup> of Crosse and others,<sup>5</sup> and Zuelzer and Mudgett.<sup>6</sup> The presence of hydrops fetalis is an indication for immediate emergency exchange transfusion; otherwise, the decision is based on hyperbilirubinemia according to the following rules:

1. A serum indirect bilirubin level rising at a rate exceeding 0.5 mgm./100 ml./hour in the first 24 hours of life or exceeding 10 mgm./100 ml. in the first 24 hours.

2. A rising indirect bilirubin approaching 20 mgm./100 ml. at any time in the neonatal period. A lower minimum value (16-18 mgm./100 ml.) is employed in premature infants.

3. Inability of the laboratory to demonstrate blood group incompatibility does not alter the decision to perform an exchange transfusion if the indirect bilirubin reaches levels meeting either of the above criteria.

The first of these criteria, dealing with the rate of rise of bilirubin in the first 24 hours of life, is primarily applicable to infants with erythroblastosis due to the Rh factor. These infants show an early and rapid elevation of the bilirubin concentration, while infants with ABO incompatibility and idiopathic hyperbilirubinemia demonstrate a later and less rapid rise of bilirubin concentration. The second rule is applicable to all cases of hyperbilirubinemia in the newborn period. Bilirubin determinations may be necessary as often as every six hours until the rate of rise of bilirubin concentration is established, or as infrequently as every 24 hours in some patients, especially those with idiopathic hyperbilirubinemia. It is important to recognize that any such rules are arbitrary and subject to revision to fit each individual patient. Continued observations in hyperbilirubinemia may lead to revision of the criteria stated here.

During the two-year period covered by this study we have exchanged 12 infants who had hyperbilirubinemia without demonstrable blood incompatibility or sepsis to account for the elevated bilirubin. These infants showed jaundice after 48 hours and achieved bilirubin levels comparable to those reached in cases of hemolytic disease. One of these infants shows evidence of kernicterus at 11 months of age.

Brown and Zuelzer<sup>13</sup> have recently reported 46 cases of hyperbilirubinemia without demonstrable incompatibility, and these infants all showed bilirubin levels above 12 mgm./100 ml. None of the term infants in their group showed sequelae, but three infants in the premature group expired with kernicterus having been demonstrated in two of these at autopsy.

It is apparent that this condition, often referred to as "physiologic" jaundice, is not an innocuous condition and deserves corrective therapy (exchange transfusion) to prevent kernicterus. The term "physiologic" jaundice should be dropped from the medical literature as it implies a harmless condition and gives a false sense of security to the practitioner.

Our studies of infants with hyperbilirubinemia have been greatly simplified by the adoption of "microbilirubin" determinations. These permit the determination of bilirubin concentration on specimens obtained by heel puncture and do away with the technically difficult and traumatic venipunctures previously necessary. "Microbilirubins" are done by the method of Powell<sup>15</sup> as modified by Brown and co-workers.<sup>14</sup> These determinations have proved comparable in ac-

curacy to those done by methods utilizing venous blood.

We have not hesitated to perform exchange transfusions when the umbilical vein route is no longer available. Cannulations of the saphenous and femoral veins have proved to be both technically satisfactory and safe in our experience. It may be anticipated that the majority of exchange transfusions for idiopathic hyperbilirubinemia will of necessity be done by femoral cutdown because this condition manifests itself at a time when the umbilical vein is no longer operable.

### Summary

1. The purpose of exchange transfusion is to prevent levels of serum indirect bilirubin from exceeding 20 mgm./100 ml.

2. High levels of indirect bilirubin were found in the blood of 43 infants in a period of two years at the University of Kansas Medical Center; 19 infants had Rh-incompatibilities, 12 had ABO incompatibilities, and 12 belonged to the idiopathic group.

3. Determination of the concentration of indirect bilirubin in the blood is essential to the care and management of neonatal jaundice. Bilirubin determinations utilizing capillary blood simplify the problem.

4. The technique of exchange transfusion utilized at the University of Kansas Medical Center is described.

5. It is important that exchange transfusion be performed before irreversible damage to the central nervous system has occurred.

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Philosophy is a product of the humanity of each philosopher, and each philosopher is a man of flesh and bone like himself. And let him do what he will, he philosophizes not with the reason only, but with the will, with the feelings, with the flesh and with the bones, with the whole soul and the whole body. It is the man that philosophizes.

—Miguel de Unamuno

# Polycythemia Vera

## *Study of Coagulation Abnormalities, Both Thrombotic and Hemorrhagic*

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and WILLIAM E. LARSEN, M.D., *Kansas City*

An increased incidence of hemorrhage and thrombosis is a paradox in polycythemia vera. The known facts do not give a complete explanation. In the active phase of the disease there is an increase in the red cell mass, hematocrit, platelets, and viscosity, these elements producing a thrombotic tendency. However, the prothrombin and fibrinogen are at least relatively decreased per unit volume of whole blood and contribute to a hemorrhagic tendency.

Stefanini and Dameshek<sup>1</sup> observed a fibrinogenemia of varying severity, the blood clot being unusually small. The small fibrin clot cannot hold the red cells of the elevated hematocrit. The small clot and the falling out of red cells can be mistaken for fibrinolysis. Lawrence<sup>2</sup> also described this peculiar clot retraction with red cell release.

The present study was undertaken to answer the following questions: (1) Is the fibrinogen actually decreased? (2) Is there an increase in fibrinolysis, and is the red cell fall-out phenomenon related to fibrinolysis? (3) Is the phenomenon of red cell fall-out corrected by therapeutic control of the polycythemic state? Previous observations have been published in abstract form by Wilson and Heath.<sup>3</sup>

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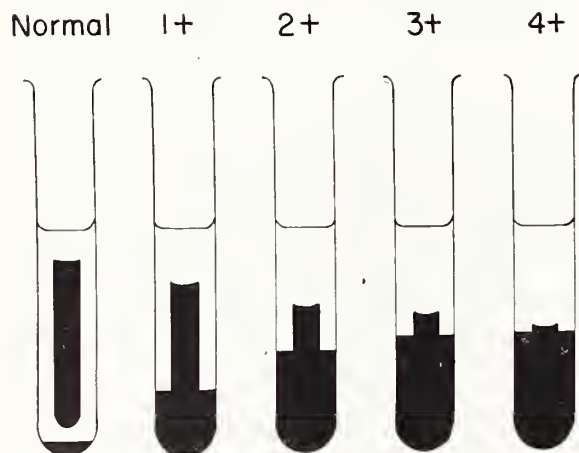


Figure 1. Demonstration of red cell fall-out phenomenon.

### Methods

Fibrinolysis was quantitatively determined. Whole blood was collected in sterile siliconed glassware without an anticoagulant, cooled immediately in ice water, and centrifuged at 5° C. The clear plasma was then removed and separated into 1.0 ml. aliquots and incubated at 37° C. Thrombin was added to produce complete and immediate clotting. The fibrin was removed at 0, 24, and 48 hours and thoroughly washed in running water. The amount of fibrin (also equivalent to fibrinogen) was determined quantitatively by the spectrophotometric adaption<sup>3</sup> of the method of Greenberg and Mirolubova.<sup>4</sup>

**The study reported here was undertaken to answer three specific questions pertaining to frequent hemorrhagic tendencies in patients with polycythemia vera. The method of study is described, observations are presented and discussed, and conclusions are drawn.**

The clot retraction and red cell fall-out phenomenon was observed by placing 5 ml. of whole blood in a test tube and incubating for 24 hours at 37° C.

TABLE 1  
DATA, 37 NORMAL SUBJECTS

Average fibrinogen level, mgm. %	310
Range of fibrinogen values, mgm. %	230-402
Fibrinolysis, mgm. % fibrin lysed in 48 hours	
15 subjects (40.5%)	0
16 subjects (42.0%)	2-30
5 subjects (13.5%)	31-60
1 subject ( 4 %)	75
Red cell fall-out phenomenon	
9 subjects (24.5%)	0 to ±
18 subjects (48.5%)	1 +
10 subjects (27.0%)	2 +



TABLE 2  
DATA, 23 TREATED PATIENTS WITH  
POLYCYTHEMIA VERA

Average fibrinogen level, mgm. %	332
Range of fibrinogen values, mgm. %	229-438
Fibrinolysis, mgm. % fibrin lysed in 48 hours	
10 subjects (43.5%)	0
9 subjects (39.0%)	3-30
2 subjects ( 8.5%)	31-60
1 subject ( 4.5%)	108
1 subject ( 4.5%)	193
Red cell fall-out phenomenon	
4 subjects (17 %)	0±
3 subjects (13.5%)	1 +
7 subjects (30 %)	2 +
5 subjects (22 %)	3 +
4 subjects (17.5%)	4 +

The degree of separation and red cell fall-out was graded on the basis of 1 to 4+ (see Figure 1). The clot retraction, red cell fall-out phenomenon, and fibrinolysis were done simultaneously.

### Observations

For the purpose of comparison, observations were made on 37 normal adult male and female subjects. The results of these observations are tabulated in Table 1.

Studies were completed on 23 patients with polycythemia vera who were in good clinical control. Therapy usually consisted of a combination of radioactive phosphorus ( $P^{32}$ ) and phlebotomy. One patient was controlled by phlebotomy alone. The results of these studies are tabulated in Table 2.

A third table gives the results of observations on 7

patients with polycythemia who had never been treated.

A comparison of the data in the tables is most interesting. It is to be emphasized that hematocrit values in the treated patients were essentially within normal limits. There is no difference in the fibrinogen values of normal subjects and treated patients with polycythemia vera. The fibrinolysis is also essentially the same with the exception of two treated patients. There is a tremendous difference in the red cell fall-out phenomenon. In 39.5 per cent of the treated patients, the fall-out phenomenon is still abnormal (3 to 4+).

The untreated patients had excellent levels of fibrinogen. It must be remembered that the fibrinogen is measured in mgm. per cent of plasma, not whole blood; therefore, with high hematocrit values there is a relative decrease in fibrinogen. All but two had a 4+ red cell fall-out phenomenon. When under therapeutic control with  $P^{32}$  and phlebotomy, one patient exhibited a 4+ phenomenon. Fibrinolysis was not increased with the exception of one patient (F. B.) in whom there was complete lysis. In this instance the fall-out phenomenon could not be evaluated as all fibrin was absent.

### Discussion

It is indeed a paradoxical situation when hemorrhage and thrombosis occur in the same patient with polycythemia vera.<sup>1, 2, 6, 7, 8, 9</sup> The incidence of hemorrhage from various areas such as cerebral and gastric vessels is high. The relative decrease in prothrombin and fibrinogen and the increased blood volume and capillary distention contribute to the hemorrhagic tendency.

Previous studies and the present observations in

TABLE 3  
DATA, UNTREATED POLYCYTHEMIA VERA

Patient		Fibrinogen mgm. %	Lysis fibrin, mgm. %	Red cell fall-out
S. N.	before treatment	230	0	4 +
	after $P^{32}$ and phlebotomy	260	30	4 +
J. P.	before treatment	282	32	2 +
	after $P^{32}$ and phlebotomy	270	10	4 +
L. K.		300	0	4 +
F. B.		367	367	lysis
W. B.		376	12	4 +
C. B.		220	30	4 +
W. W.		348	19	2 +

untreated patients reveal the inability of the fibrin clot to hold the large quantity of red cells, and the fall-out phenomenon is marked. However, we feel that the previous explanations are totally inadequate inasmuch as 39.5 per cent of our treated patients still retained a defective fibrin clot with persistence of the red cell fall-out phenomenon. Our interpretation is that the fibrin (and possibly the fibrinogen) is at fault. There could even be an abnormality in the molecular structure.

Increased fibrinolysis is rare, having been noted in only two treated patients and in one untreated patient. Thus fibrinolysis does not explain the fall-out phenomenon. No patient in our series had a decrease in fibrinogen such as has been reported in an occasional patient with polycythemia vera.

### Conclusions

Certain coagulation factors were observed in patients with polycythemia in an attempt to explain further the frequent hemorrhagic tendencies.

Fibrinogen levels, fibrinolysis, and the red cell fall-out phenomenon (separation of red cells and clot) were observed in 37 normal subjects and 30 patients with polycythemia vera (23 treated and 7 untreated).

The fibrinogen levels and the degree of fibrinolysis were essentially the same in normal subjects and patients with polycythemia vera. Increased fibrinolysis was observed in only two treated and one untreated patient.

The inability of the fibrin clot to hold red cells (resulting in a fall-out phenomenon) was striking in untreated polycythemia vera. Therapy did not correct this defect, 39.5 per cent of treated patients retaining this phenomenon. This suggests a defect in the fibrin itself and possibly in its precursor fibrinogen. The extremely poor fibrin strands probably contribute to the hemorrhagic tendency.

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# Arteriovenous Fistula

## *Report of Case Developing after Operation for Ruptured Intervertebral Disc and Successfully Repaired by Homograft*

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and MAX ALLEN, M.D., *Kansas City*

Arterial-venous fistulas have been reported following trauma or surgical procedures. Elkin<sup>1</sup> comments on the frequency by relating a personal series of 650 operations on aneurysm and arteriovenous fistulas with a 1 per cent incidence following previous surgery. Linton and White,<sup>2</sup> and Glass and Ilgenfritz<sup>3</sup> have reported arteriovenous fistulas secondary to operation for intervertebral disc.

These cases were treated by quadruple ligation with a preliminary sympathectomy. The great vessels lying on the anterior surface of the lumbar vertebrae are in a vulnerable location. Plunging through the anterior annulus in removing a ruptured intervertebral disc may injure the underlying arteries and veins. This unfortunate accident is accompanied by severe blood loss.

The effects of a developing arteriovenous fistula on the cardiovascular system have been aptly summarized by Pratt<sup>4</sup> and Holman.<sup>5</sup>

1. A fall in arterial pressure with a gradual recovery, the systolic higher and the diastolic lower, reflecting a greater pulse pressure.
2. Increased venous pressure.
3. Increased pulse rate.
4. An increased cardiac output, depending on the site and size of the fistula.
5. Temporary decrease in the size of the heart followed by an increase and hypertrophy of the heart.
6. Increased total blood volume.
7. Development of collateral circulation around the fistula and, if the above process continues, uncorrected cardiac failure.

### Case Report

A 35-year-old white female was admitted to the University of Kansas Medical Center on May 15, 1954. Six months prior to admission she was in an auto accident. She complained of non-radiating pain low in the back associated with numbness and weakness of the left leg. Myelograms were made, and an operation for a ruptured intervertebral disc was performed else-

where. The patient states she "lost a lot of blood" during the operation. Three months prior to admission to the University of Kansas Medical Center she complained of a swollen abdomen, nausea, emesis, and dyspnea on exertion. After three weeks of hospitalization, she returned to her home with generalized weakness and ankle edema even though she was digitalized.

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**A case of arteriovenous fistula secondary to operation for ruptured intervertebral disc was successfully repaired with a homograft. This procedure cured the patient from the symptoms following a traumatic arteriovenous fistula.**

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Physical examination revealed a chronically ill dyspneic female with pitting edema of the ankles and the chest wall. Blood pressure was 115/65. Pulse rate was 90. A low grade fever appeared every other day, reaching 100.5°F. Jugular vein pulsated synchronously with the carotid pulse. Basilar bilateral rales were heard. A bruit was auscultated over the lower abdominal aorta and transmitted to both iliac arteries. An apical systolic Grade II and Grade III murmur was present with a diastolic gallop over the apical and mitral areas. The heart was enlarged with a point of maximal impulse in the anterior axillary line. The liver and spleen were palpable and tender. Pistol shot sounds were heard over the left femoral artery.

Laboratory studies revealed a normal complete blood count, nonprotein nitrogen, creatinine, blood sugar, and serum electrolytes. Wassermann was negative. Blood cultures were negative. Prothrombin time was 60 per cent of normal. Urinalysis showed occasional pus cells. *A. aerogenes* was cultured from the urine. Blood volume studies showed an increased plasma volume and a total cell mass.

Electrocardiogram showed a rate of 100 with digitalis effect. P waves were peaked in leads II, III, and AVF. Chest x-rays confirmed cardiac enlargement and pulmonary congestion (Figure 1).

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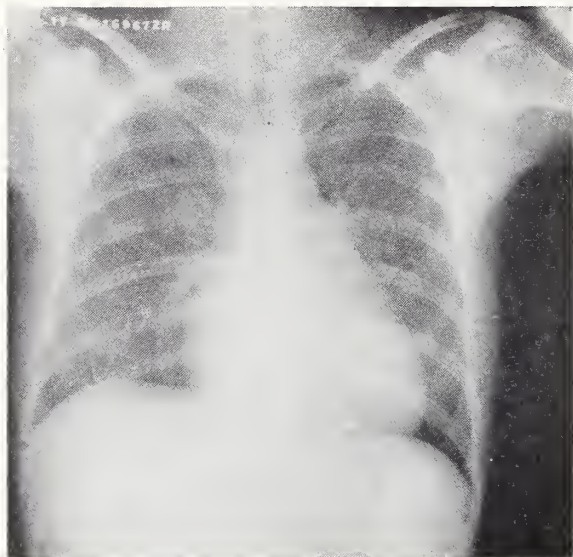


Figure 1. Heart size of patient on admission showing cardiac enlargement and pulmonary congestion.

A lumbar aortogram done with 70 per cent Urokon localized a fistula between the left iliac artery and vein.

The patient was prepared for surgery with salt restriction, digitalis, vitamin K, oxide, Gantrisin for urinary infection, and daily procaine penicillin.

Operation was done on May 21, 1954, under continuous spinal anesthesia. An arteriovenous fistula was found on the left, 2 cm. from the iliac bifurcation. The fistula measured 1 cm. in diameter. The proximal and distal iliac arteries were mobilized and cross-clamped. When the proximal iliac clamp was applied, a transient Branham's sign with a bradycardia of 50 developed. The proximal and distal vein was compressed, and the fistula was excised. The iliac vein was sutured in a linear fashion. The posterior wall of the iliac artery was missing with surrounding scarring and

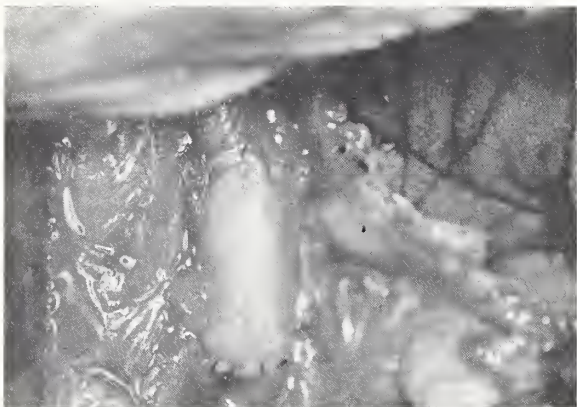


Figure 2. Frozen homograft spanning surgical defect common iliac artery.

secondary arteriosclerotic changes. The iliac artery was resected for a distance of 5 cm., and the defect was replaced with a frozen one-week-old homograft (Figure 2). Anastomoses were accomplished with 00000 black silk suture. Occluding clamps were removed restoring arterial and venous blood flow. Blood pressure during surgery ranged from 160-140/80.

The postoperative course was dramatic in the patient's improvement. She was ambulatory on the third postoperative day. Blood volume and venous pressures returned to normal. Normal left femoral and distal pulses were present. Postoperative digitalis and antibiotics were continued. The electrocardiogram showed a marked decrease in rate from 100 to 50. T waves were inverted in leads IV, V<sub>2</sub>, and V<sub>3</sub>, indicating rotation of T vector to the left. The patient was discharged on May 29, 1954. Followup examination three years after surgical repair revealed a return to normal in heart size, disappearance of systolic heart murmur, and no signs of cardiac failure (Figure 3). The patient has good femoral and distal pulses with no claudication on exercise or walking.

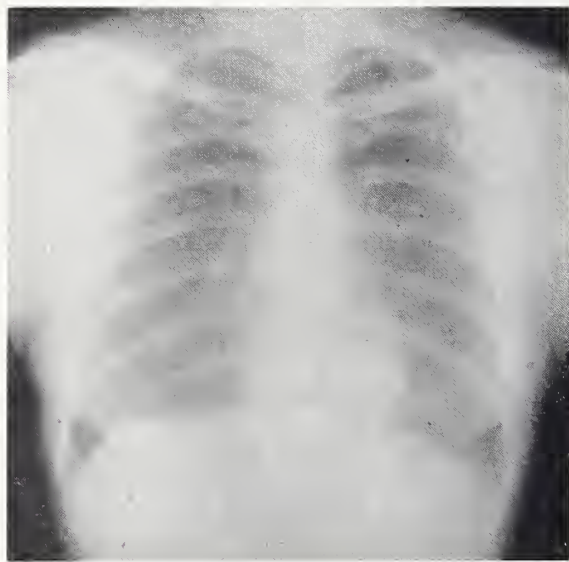


Figure 3. Reduction of heart size following closure of A-V fistula and grafting of iliac artery.

### Comment

The surgical correction of arteriovenous fistulas has usually been quadruple proximal and distal ligation of the arteries and the veins. Important considerations in such a procedure are the age of the patient, anatomical location of the fistula, and the potential collateral circulation capable of being developed after sudden ligation. Acute ligation of the common iliac artery carries a reported incidence of 6 per cent<sup>6</sup> to 50 per cent<sup>7</sup> gangrene to the distal extremity. Patients treated surgically

ly for arteriovenous fistulas in the lower extremities by ligation, with or without sympathectomy, may have varying degrees of exertional claudication.

The recent availability and familiarity of arterial grafting procedures offer a better solution to the problem of arteriovenous fistulas—especially, as in this case, when the fistula is located in the common iliac artery and vein. Anatomical repair by graft replacement will insure a direct arterial flow and eliminate the probability of claudication.

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# Deafness

## *Examination Techniques for Evaluating Malingering and Psychogenic Disabilities*

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During the last 10 to 15 years there has been an increasing awareness on the part of physicians of the need for more precise techniques to evaluate claims of hearing disability resulting from accidents in industry. The otologist, or specialist in pathology of the ear, is well aware that the standard otological examination is frequently not adequate to determine whether or not the patient has suffered injury to the auditory mechanism. The elaborate equipment necessary to show that the injury to hearing either has or has not been sustained is usually to be found at a university hospital.

However, it happens occasionally that the otologist in the field is not utilizing to full potential the equipment which may be at his disposal. The purpose of this paper, therefore, is to review current techniques which are employed in university hospitals to expose feigned hearing loss with special emphasis on tests which may be performed on a two channelled speech pure tone audiometer.

The individual who feigns a hearing loss as a result of a fall, blow on the head, or other such accident which occurred during working hours stands to receive compensation by virtue of the disability. In general, malingerers professing hearing loss fall into two general classifications, i.e., those with feigned bilateral auditory impairment and those with feigned unilateral hearing impairment. The two classifications

may be further sub-divided into degrees of malingered hearing loss. Thus, the individual may feign a bilateral total or a bilateral partial hearing loss, and, similarly, a unilateral total or a unilateral partial hearing loss.

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**Various tests for detecting functional deafness have been outlined. Specific attention was given to tests which could be performed in an otologist's office.**

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Still another factor with which one is confronted in the examination of medico-legal cases is the frequent presence of organic hearing loss, the magnitude of which has been exaggerated by the individual. Whether or not the underlying organic impairment is associated with the accident is difficult at times to establish. The case history covering the patient's age, his previous occupations, recreational habits, activity in military service, if any, previous illnesses, and family history of deafness usually contribute enlightening information in lieu of final test results.

## Tests to Detect Bilateral Malingering

Prior to the development of the delayed feedback test, there was no satisfactory method for quantitatively exposing the individual who feigned total bi-



lateral deafness. The Lombard test afforded a method for securing indications of malingering from relatively naive malingerers, but it too frequently leaves the issue in doubt in the case of sophisticated individuals. The test is based on the reflex tendency of a person to raise the sound intensity of the voice in the presence of noise as compared to the level employed in quiet. As an example, one might have the patient recite a short rhyme or read out loud a passage from a book, noting, during the execution of the task, the loudness of the patient's voice. Next, apply Barany noise makers to the ears of the patient (one on each ear) and have him continue to recite or read out loud. Observe whether his voice increases in loudness during the recitation in noise as compared to the recitation in quiet. Quite frequently naive malingerers will literally shout under the noise condition.

Since development of the two channelled pure tone audiometer, equipped with a controlled masking source, the Lombard test can be done with much better precision. This may be illustrated by the following procedure. Place the air conduction receivers on the patient and have him either recite or read out loud from a pre-selected passage. Note the loudness level of his voice. Gradually introduce the masking simultaneously into his ears through the earphones. Note the level at which the patient first begins to raise his voice. Continue to increase the level of the noise until the maximum loudness is reached. Observe whether the patient continues to raise his voice level as increments in noise are added. The naive malingerer will often be shouting at the top of his voice when the sound is at its maximum intensity. Gradually withdraw noise from the two earphones, noting during the procedure the decreasing loudness of the patient's voice. Check the level at which the voice returns to the pre-noise exposure loudness.

If an average level of noise at which the reflex to raise as well as lower the voice has previously been determined on the equipment, by averaging the values at which the phenomenon takes place on about ten subjects with normal hearing, then a rough quantitative measure is afforded for determining the degree of malingering. This test may be done in the otologist's office or single test room. It does not require a two-room set-up.

Unfortunately, many malingerers soon become aware of the nature of the test and learn to modify the loudness of the voice under noise exposure. Differences then between the noise and the quiet conditions of reading or reciting may be either missing entirely or so minor as to leave a diagnosis one way or the other in doubt.

Another simple method for obtaining information relative to whether or not a patient is feigning total bilateral deafness is to inadvertently (at least make it

appear so to the patient) put either maximum noise or a pure tone (we use 4000 cycles per second because of its irritating effects) in both ears and then leave the room on some pretense. From a pre-determined vantage point observe the behavior of the patient. Frequently the patient will furtively watch the door for re-entrance of the examiner and either remove the earphones completely from the head to reduce the din or else hold them as far away from the ears as the head band allows. If one purposely catches the patient in the act, he offers a weak excuse often pertaining to the pressure of the earphones. This particular technique for exposing the patient who malingers bilateral total deafness has been used by otologists since time immemorial. At best, when successful, it indicates to the otologist that the patient is prevaricating with reference to total deafness. No information is provided relative to the extent a patient may be exaggerating a moderate organic loss.

One of the best methods for detecting bilateral total hearing loss is the Delayed Feedback Test. The phenomenon of haltering and stuttering which takes place when one's own voice is fed back through earphones to the ears under certain conditions of delay during the course of reading or reciting has been rather extensively studied. Many commercial audiometers such as the Beltone 15A are equipped so that a double headed tape recorder may be attached which records the speech of the individual under test and plays the speech back through earphones (worn by the subject) at about a .16 second delay. Recent experimental work with delayed feedback by Hanley and Tiffany<sup>16</sup> has indicated that changes in speech occur as low as 20 decibels relative to the speech reception threshold. In other words, the effects of delayed speech upon the individual under test are discernible when the level of the speech is only slightly above the threshold of speech. When the delayed speech is 40 decibels or more above threshold, the effects upon the individual under test are even more pronounced. It is possible, therefore, with the delayed feedback test not only to get quantitative evidence of malingering but also to specify within limits the degree of loss if there is one.

For example, a patient purporting to have bilateral total absence of hearing who manifests severe disturbance in speech at 40 decibels relative to the normal threshold of speech, would be exposed as possessing relatively either normal or near normal hearing (within 20 decibels of normal) in at least one ear. Subsequent examination with monaural delayed speech, testing each ear separately with masking on the opposite ear, affords a method for checking the ears individually, thus determining whether or not a unilateral impairment exists. This test will be described under unilateral tests.



Another technique, utilized extensively in the diagnosis of feigned and psychogenic hearing loss, is the psychogalvanic skin test or PGSR. Unfortunately, in the light of increasing research, PGSR audiometry does not appear to be the panacea its more optimistic proponents envisaged. Goldstein and his associates<sup>11, 12, 13</sup> in a series of studies have reported that approximately half of their subjects with normal hearing, whether children or adults, were difficult to condition with the galvanic skin test. Further, Goldstein has reported on the difficulty of conditioning often encountered in adults suspected of functional hearing loss. These investigations do not imply that the PGSR test is of no value in the diagnosis of hearing loss. Rather, they stress the importance of the skin-resistance technique as a valuable adjunct in differential diagnosis, and point up emphatically that interpretation of results must be made with extreme caution and in the light of research findings to date.

Johnson, Work, and McCoy<sup>18</sup> advocate the use of PGSR audiometry in testing for functional overlay, but they feel that the results must be considered in conjunction with other methods. The equipment required for the test is usually to be found only in university and hospital clinics. However, the equipment is commercially available and built for use with many of the clinical audiometers which are now on the market. Although a two-room set-up is not required for this test, it seems unlikely that the average otologist could spare the time required either to master the technique or to administer the test. Again, a team of two persons is necessary when small children are involved.

The repeat audiogram test, on the other hand, provides a method which is of practical use to the otologist in the field. The technique is of no avail in cases of feigned bilateral total hearing loss. Information of a general nature may be obtained when the patient feigns bilateral partial deafness. Gundrum<sup>15</sup> recently compared the test-retest audiograms of 50 subjects with normal hearing who were requested to simulate bilateral partial deafness with 50 patients who possessed bilateral partial hearing loss. In the former group only two subjects were able to simulate reasonably well the thresholds of their first test. The latter or second group (true organics) showed only minor variations between the two tests. It would appear therefore, from the results of this study, that the repeat audiogram technique affords a method for determining the presence of malingering in cases of bilateral partial feigned deafness.

In addition to the evidence relative to malingering and functional deafness which is provided by the patient's inability to repeat the threshold reasonably well, there are certain other manifestations pertaining to characteristics of the audiogram and type of re-

sponse which bear discussion. Further, the relationship between the obtained speech reception threshold and the average pure tone threshold for frequencies 500-1,000-2,000 cycles per second frequently contribute valuable information with reference to psychogenic deafness.

Some years ago, Doerfler,<sup>5</sup> in lieu of the development of the D-S test,<sup>7</sup> pointed out that the characteristic pure tone air conduction curves in about 80 per cent of patients with functional deafness were saucer-shaped and tended to range between a 50-decibel and a 90-decibel level. The term "saucer-shaped" refers to the similarity between the audiograms of functional loss patients, whether psychogenic or the result of malingering (hence either on an unconscious or a conscious basis) and the equal loudness contours or phone lines. Individuals with normal hearing who simulate deafness will usually manifest a pure tone air conduction audiogram which is remarkably similar to the 60-decibel equal loudness contour. In other words, they either consciously or unconsciously balance the loudness of test frequencies at a level which corresponds roughly to the comfort loudness listening level of the normal ear. The occurrence, then, of the saucer-shaped audiogram at a 60-decibel level in conjunction with other manifestations subsequently to be discussed, is strongly suggestive of normal hearing. When there is functional overlay, or an exaggeration of an organic flat hearing loss, the obtained audiogram might be expected to lie in the region of the 90-decibel equal loudness contour, depending, of course, upon the degree of organic involvement.

Johnson, Work, and McCoy<sup>18</sup> recently illustrated the emergence of the saucer-shaped audiogram in patients with simulated deafness whose true hearing thresholds were normal except for a dip at 4,000 and 8,000 cycles. The explanation for the saucer audiogram or equal loudness contour lay in the recruitment at the aforementioned two frequencies. As the curves, after repeat audiograms, approach the actual threshold, the saucer characteristic disappears, as would be expected.

The appearance then of a saucer-shaped audiogram, particularly when there are other evidences of functional deafness such as delayed and slow responses, restlessness, a general evasive attitude on the part of the patient in consistency in test-retest responses, poor bone conduction responses inconsistent on retest, etc., must be treated with extreme suspicion.

As previously noted, the relationship between the speech reception threshold and the pure tone air conduction average loss for 500-1,000-2,000 cycles per second is often an important indicator of psychogenic deafness. Differences between the speech reception threshold and the average pure tone air conduction loss, as indicated above for flat audiograms, are re-

garded as insignificant when the magnitude is of the order of 6 decibels or less. Therefore, a speech reception hearing loss of 45 decibels with a pure tone average loss by air conduction of 51 decibels would be within the limits of accepted normal variation. If, however, the discrepancy between the two aforementioned thresholds lies between 7 and 13 decibels, with the speech threshold being the better, there is strong suspicion of psychogenic deafness. Differences which exceed 13 decibels (speech being the better) are practically first order evidence of psychogenic deafness and, hence, psychiatric referral.

The D-S test<sup>7</sup> affords another method for uncovering functional hearing disorders. The test, however, necessitates a two-room set-up. Doerfler and Stewart observed that patients with functional hearing loss manifested an exaggerated disturbance in speech reception in the presence of noise. To illustrate, a person with either normal hearing or an organic hearing loss will not succumb to the masking effects of noise upon speech until the level of the noise is about 20 decibels greater than the level at which the speech is being presented. For example, a person with normal hearing or an organic hearing loss (provided discrimination is not extremely poor in the latter case) will repeat spondees with 100 per cent efficiency when they are administered in quiet at a level 5 decibels or more above the speech reception threshold. If noise is introduced and gradually increased, ability to repeat the spondees will not be completely obliterated until the level of the noise is 20 decibels greater than the level at which the speech is being presented.

However, with the psychogenically deaf patient, such is not the case. Doerfler and Stewart observed that in cases of functional deafness, speech reception was disturbed and in many instances was completely obliterated when the level of the noise was 10 to 15 decibels weaker than even the admitted speech reception threshold. Thus, a disturbance in speech reception by noise which is actually too weak to produce a masking effect provides evidence of functional deafness.

When the test is administered the level of the noise is gradually increased until it has exceeded the level of speech presentation by 20 decibels or more. (In other words, to a point at which masking of speech is 100 per cent effective.) The level at which the speech was given is then lowered by 20 or 25 decibels. Gradually the noise is attenuated until the lower level of speech again emerges through the noise. Malingerers as well as psychogenics, their loudness points of reference upset by the noise, will begin to respond again, but this time at a level 20 to 25 decibels below their former admitted reception level for speech.

In the foregoing paragraphs, many of the techniques currently employed to detect bilateral total and partial functional hearing loss were discussed. The succeeding pages will be concerned with tests of unilateral total and partial hearing loss.

### Unilateral Tests

Evidence of unilateral feigned deafness is at once apparent when, in the course of the pure tone air conduction test, the audiogram of one ear is either normal or relatively so with complete absence of response on the opposite ear. The reason, of course, is that a shadow curve will appear in the case of organic unilateral total deafness. It is a well established fact that the shadow curve, or cross hearing in the aforementioned type of hearing loss, takes place at about the 50-decibel level. Further evidence of malingering is obtained when the patient vociferously claims inability to hear the bone conduction tone applied to the supposedly deafened ear. As is well known, the shadow bone curve in unilateral organic deafness occurs on an average at a 10-decibel level. As a general rule, using air conduction, failure of a response curve to appear at between 50 and 60 decibels relative to the obtained threshold in the admittedly good ear as well as failure of the bone response curve of the supposedly deafened ear to appear at a level 10 to 15 decibels greater than the recorded bone curve of the better ear, strongly suggests feigned deafness.

Regardless of whether or not there are evidences for suspecting simulated hearing loss, every patient with either unilateral total or partial impairment is administered a battery of tests designed to expose the malingerer.

The unilateral Lombard test can be performed in a few minutes and, in the case of naive malingerers, often helps to confirm initial indications of simulated deafness. The patient, after donning the headphones, is requested to either read out loud a passage from a book, recite a poem, or in some instances count to 100. The level of the voice is noted. Suddenly, noise of about 80 decibels is introduced into the supposedly deafened ear. A marked increase in the voice level will be in evidence if the hearing loss is simulated. Subsequently, the noise is switched back and forth between the ears. If the increased level of the voice is maintained regardless of the ear under stimulation, malingered deafness is indicated. If, on the other hand, the voice is apparently raised only when the noise is channelled to the admittedly good ear, organic deafness of the claimed deafened ear is indicated. Unfortunately, the malingerer of average ability soon learns to modify his voice in the presence of unilateral noise, thus vitiating the effectiveness of the test.

The Stenger test first described in 1907 is within



certain limits one of the best techniques for exposing simulated unilateral deafness. However, Gibbons and Winchester<sup>10</sup> have recently emphasized several drawbacks of the test which may lead to spurious results. When technical failure of the equipment is concerned, as manifested by a difference in the time element of tonal presentation to the ears (in our experience associated with audiometers of slow tonal rise), by frequency differences producing a beat, as well as by electrical cross-over from one channel to the other, we are in full agreement with Gibbons and Winchester. However, in the absence of technical failure, which in our experience has been achieved in the Beltone 15A audiometer, an additional objection, i.e., namely, unfamiliarity with the principles of the test as a prerequisite for its success, is groundless. As a matter of fact, it has been our practice to thoroughly explain the principles of the Stenger to our graduate students in audiology and otology and then have them attempt to literally "beat the test." We have found the test unbeatable.

The Stenger test is associated with the principle that when tones of identical frequency but differing as to intensity are presented simultaneously to the two ears, only the tone dominant in intensity will be heard, the weaker tone being masked out. Our administration of the Stenger test, using tones, is always executed under the guise of rechecking the admittedly good ear. If, for example, the threshold of the good ear lies at 5 decibels at 1,000 cycles per second, this threshold is rechecked. During the recheck however, the tone is presented at threshold plus 5 decibels to assure 100 per cent response. The attenuators are set then so that there will be a simultaneous presentation to the supposedly deaf ear and good ear at a 40-decibel and 10-decibel level respectively.

Absence of a response is definite evidence that the tone is being heard in the supposedly deafened ear. The attenuator controlling the stimulus to this ear is lowered in 5-decibel steps until a response finally occurs. If the patient does not respond until the intensity of the tone is equal to the intensity of the tone in the admittedly good ear, there is definite evidence that the ears are approximately equal in sensitivity. By repeating the same procedure at other frequencies, an audiogram may be obtained on the ear which will approximate the true threshold. If, on the other hand, the patient responds at the initial settings of the attenuators (hearing loss deals) i.e., 40 decibels and 5 decibels, then there is the possibility of a true organic loss of the ear in question. To check this possibility, the tone is removed completely from the admittedly good ear. On re-introduction of the signal, therefore, only the supposedly deafened ear is being stimulated. If the patient responds, he is definitely hearing the

tone in the ear. Conversely, if there is no response, an organic loss of the ear is indicated. The procedure is repeated a number of times to verify the results.

It sometimes happens that a patient simulating a severe or total unilateral loss will tend to exaggerate the threshold even in the admittedly good ear. An initial audiogram of the ear may therefore show a 10- to 15-decibel depression. Usually, the examiner is aware of the situation by virtue of the nature of the patient's response pattern (threshold variability, hesitancy of response, etc.). With the procedure as described in the preceding paragraphs, it is often possible to determine the relatively true threshold. For example, the patient whose threshold response on the good ear is at 15 decibels and who has failed to respond with simultaneous presentation of the tones to the ears at 40 decibels and 20 decibels will often respond to a final stimuli-presentation of, for example, ODB to the supposedly deaf ear and 5 decibels to the good ear. Confusion as a result of the first stimuli-presentation is more than likely to bring a true response when the tone is definitely in the good ear. Thus, the Stenger test which is usually thought of as a technique for exposing unilateral malingerers may also be employed to detect bilateral partial malinger-ing.

It will be noted, in the examples we have cited, that the initial stimulus to the supposedly deafened ear has been at a 40-decibel level over the normal threshold. The reason for the level is to insure that the tone to the affected ear is below the level of cross hearing. To be more explicit, there is always danger of cross-hearing when the intensity of the tone exceeds 50 decibels in the event that there is actually some organic loss with superimposed simulated deafness. Such a condition which is not infrequent would obviously confuse the test results. Unilateral organic hearing losses of 40 decibels or so are at times exaggerated to the 70- or 80-decibel level. In cases of this type, the use of the Stenger test becomes hazardous. The unilateral delayed feedback test, to be discussed, should be the technique of choice.

The principles of the Stenger test which have been emphasized in conjunction with the pure tone test are also applicable to the modified Stenger test using spondee words. Therefore, a detailed description of this procedure will not be given. Suffice to say that in our clinic, the modified Stenger is an indispensable part of the battery of tests which are used to uncover functional deafness. It is particularly well-suited for the examination of children. Although the modified Stenger test can be done much more effectively in a two-room set-up employing monitored level voice, because of its flexibility, nevertheless we have recently been experimenting with the tests using records (W-1



and W-2). Results have been gratifying. At present research is under way to experimentally determine the usefulness and limits of the test in this form. If this research should demonstrate the validity of technique, another method will be available to the practicing otologist, since a two-room set-up would not be required for its administration.

Within the last year Winchester and Gibbons<sup>10, 27</sup> have experimentally demonstrated that the unilateral delayed side test (delayed feedback test) with noise (saw tooth) in the opposite ear is an effective method for determining functional deafness. Essentially, the test consists of a comparison between the time required to read a selection of prose of at least 500 syllables (the selection is homogeneous as to difficulty and at a fifth grade level) with 60 decibels of delayed speech on the good ear and 80 decibels of noise on the apparently deaf ear and the time required to read the same passage with the stimuli conditions reversed (60 decibels of delayed speech to supposed deaf ear and noise on the good ear).

Gibbons and Winchester<sup>10, 27</sup> advocate the administration of the tests as follows:

Step 1. Obtain organic thresholds, including speech reception threshold for the better ear.

Step 2. Screen the subject to establish his ability to read at or above the level of the material used.

Step 3. Give instructions regarding the conduct of the test. Care should be taken that the subject understands what is expected of him, especially that he is not to stop or hesitate while reading.

Step 4. Present a sensation level of 60 decibels of delayed sidetone to the better ear while at the same time presenting a masking noise level of 80 decibels over normal threshold to the apparently poorer ear.

Step 5. Signal the subject to begin reading the test material which should consist of at least 500 syllables of easily read expository prose. The elapsed reading time should be measured, preferably through the use of a stop watch.

Step 6. Reverse the above conditions so that the same level of delayed sidetone is presented to the apparently poorer ear, while masking noise at 80 decibels over normal threshold is presented to the better ear.

Step 7. Signal the subject to begin the same test passage used previously; elapsed reading time should be measured as before.

In the interpretation of results the authors have stated that a difference of more than 10 seconds between the readings is strongly indicative of organic deafness. (The condition of 60 decibels of delayed speech on the poorer ear and noise 80 decibels on the good ear would give a shorter reading time.) When the difference between the readings is smaller than 10 seconds, a functional element is suspected. Aside from

reading rate, marked changes in speech production contribute to the diagnosis. We have found the unilateral delayed speech test an invaluable adjunct to our battery of tests for functional hearing loss. It is particularly useful in exploring unilateral organic losses of about 40 decibels upon which a functional element has been superimposed. As previously pointed out, Stenger tests are not reliable in such cases. Provided the practicing otologist has the equipment, the delayed feedback tests can be done in a one-room set-up.

Another test to detect unilateral feigned hearing loss is the swing test. One method of administering the test is to tell the patient a story. On pre-determined words of the story during the narration to the good ear, the speech is swung to the supposedly deafened ear (good ear silent). The patient is then questioned on the content of the passage. Success indicates that he has heard in the supposedly poor ear, since the questions are designed so that they cannot be answered unless the key words to the apparently poor ear have been heard. We have not found this test to be as effective as many of the others which were discussed.

Other methods for exposing functional deafness such as the use of narcosynthesis have been described in the literature. We have attempted, however, to review the techniques which are generally utilized in hearing clinics with emphasis on those which can be done without a two-room audiological set-up.

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# The Retarded Child

## *Fifty Years Ago a Custodial Problem—Now One in Education and Rehabilitation*

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Fifty years ago the integration of the exceptional child into school and community was a less complex affair than it is today. There was only one kind of retarded child widely recognized then; he was the child who called attention to himself because of the extreme severity of his retardation. Many other children with less severe handicaps did not take well to book learning. These children eased out of school situations and found successful adjustment as handymen and domestics, so greatly in demand in a non-mechanized society.

Even the severely retarded child was not recognized then as either a medical or an educational problem. He was entirely a custodial problem. Families provided custody for their own severely afflicted children when they could, and there were large homes with many rooms to facilitate this home care. When home care was not possible, the state provisionally took over, adding another cot to an institution euphemistically referred to as a training school. These institutions had very little to offer, certainly neither training nor school, except for the fact that they were in an

inaccessible part of the state, thus effectively removing the child as a social problem.

This picture has changed. Unhappily we are still left with some of the same physical plants or asylums, which strive to be training schools, and we are still left with some of the old attitudes toward retarded children—the attitudes as archaic as the buildings. The change was effected by a number of events.

First, the social and economic structure became more complex, more urban-centered. The less seriously retarded, high-grade mental defectives found it more difficult to escape clinical and social recognition.

Second, the development of better psychometric devices and their widespread application to troops during World War I revealed a mass of previously

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**The physician who is called upon to diagnose or treat a retarded child has an obligation to the patient's parents as well as to the patient. An attempt is made to point out areas in which the art of medicine can enhance the practice of medicine in such situations.**

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From the Department of Pediatrics and the Children's Rehabilitation Unit, University of Kansas Medical Center.



unrecognized illiterate, uneducated, and intellectually subnormal persons to a surprised society.

And, third, universal compulsory education began to approach reality. It became less easy for the child who didn't take kindly to learning to ease out of school into a job. Most surprising of all, the compulsory part of universal education underwent a switch, largely through the efforts of parents' groups organized since World War II. Society had previously readily accepted the concept that school was compulsory for all children; now society proposed to compel schools to accept all comers—to educate or train all children to the limit of their potential, no matter how meager that might be. There are indications that this philosophy will prevail.

Before examining the physician's responsibilities in the management of exceptional children, some facts about these children should be reviewed.

First, most retarded children can benefit enormously from education and can lead fruitful and independent lives. About 75 per cent of all retarded children are in the high-grade category with intelligence quotients ranging between 50 and 75. School systems have designated these the "educable group." Doubts as to how "educable," in the sense of successful social adjustment, this group is, can be dispelled by reference to a study done in Connecticut a number of years ago.<sup>1</sup> Records on 250 moron children (we would now call them educable retarded) were secured from the 1937 census files of "social inadequates" and were matched in every way with a group of non-moron children. The two groups were similar in family size, income, religion, social, and economic level; in fact the two groups appeared identical except for their "educability." All persons in the study were born between 1915 and 1925. In 1944 the typical moron and the typical non-moron appeared as follows:

1. They each had a spouse and one child.
2. They were employed and self-supporting.
3. They were skilled or semi-skilled workers.
4. They earned \$35 to \$55 per week.
5. They had held the same number of jobs.
6. Their housing arrangements were the same.
7. They were saving money, were paying for some kind of insurance, owned radios (I'm sure it would be TV sets today), and they had telephones in their homes.
8. They had never been arrested and had no court records.
9. They habitually read a newspaper and a magazine.
10. Their participation in group activities and military service was the same.

Twenty years later, there was no major difference in the social adjustment of the child who was in a

special class for retarded children and the average child in an average classroom. The abundant economy of the period when this study was made may have contributed to the easy adjustment of the handicapped persons.

How does the retarded child fare during the school years? Not so well. A recent study on the incidence of retarded children in two counties in the East showed the following.<sup>2</sup> In children under 4 years of age, the incidence of retardation appeared to be 0.1 per cent. With increasing age, the incidence rose to a high of 4.4 per cent in the 10- to 14-year age group and then fell off to 0.8 per cent in the older age groups. The highest incidence in the school age groups indicates that diminished verbal ability and abstract reasoning of these children call attention to their handicap in an academic setting, but not so often in pre-school and post-school life situations. There is danger here that frustrations and failures during school years, will, unless expertly handled, produce long lasting emotional maladjustments in persons with a fairly respectable potential for productive and successful social adjustment. Here is an important consideration. Exceptional children make unexceptional adults, for compensations can be made for all but severe forms of retardation. A child with the double handicap of retardation and emotional disturbance cannot make the compensations necessary for successful socialization.

The origins of emotional disorders of retarded children can be found usually in one of two places: (1) in the failure of parents to adjust to the handicapped child, and here physicians can be of enormous preventive and therapeutic aid; and (2) the frustrations of an inappropriate school placement.

Occasionally, one hears the view expressed that retarded children "deserve the opportunity" to enroll in regular classrooms. This usually means that they must painfully demonstrate their inadequacies to the world and to themselves before they can be enrolled for special education. This invites disaster in the form of chronic failures and resistance to any further attempts at education. If a child is known to be retarded, he needs specialized education which individualizes his program to the maximum degree. He may be greatly harmed by repeated failures in school; he will not be particularly benefited by running several times through a kindergarten program in which he is not able to participate.

There is a handicap in addition to the retardation which hinders the successful integration of these children into school and community. Retarded children are denied our best professional skills. A diagnosis of retardation automatically excludes children from therapy in many child guidance clinics. An intelligence quotient of 150 rates a psychologist's report three



times as detailed as that for a child with a rating one third as high. Many physicians discharge their obligations to retarded patients in a hasty and embarrassed fashion. And social case-work for retarded children is too often limited to assisting parents in filling out forms for institutionalization. Educators preceded other professional people in recognizing their obligations to retarded children, but in most professions concern with retardation has only recently begun to move a little upward on the "totem pole of professional respectability."

We have referred to "educable" retarded children and have accepted the definition of this group in terms of intelligence quotients. Such testing reveals only a small part of the child; personality, motivation, health, and a great many other factors are important and sometimes decisive in estimating a child's achievements. At least we talk this way about most children. When considering retarded children, the intelligence quotient acquires a validity we would never grant it under other circumstances—so much so that it is accepted by most school systems as the sole criterion for class placement of retarded children.

In point of fact, the reliability of psychometric testing is greatest near the average range. Deviation away from this range is associated with a high degree of error. The best opinion of psychologists today is that conventional psychometric tests have not been adequately standardized in the range below 70. Our own experience has been that in this range repeat testing will reveal deviations as great as 25 points.

We credit psychometric testing with a validity it does not deserve, using it, I think, to disguise our inability to arrive at sound judgments on any other basis. Speech therapists have said that the only way they can determine whether or not a retarded child will benefit from special training is to try it, usually for as long as six to nine months. If the same philosophy were applied to other training endeavors, we might be surprised by favorable results.

Psychologists are not the only professional people beginning to examine their own inadequacies. Children having educational problems commonly are referred to their physicians. Deviant behavior and aberrations in development are regarded as medical problems, and rightfully so. Retardation is mimicked by deafness, psychiatric disorders, aphasia, and poor physical health. Great importance in management and interpretation attaches to correct diagnosis.

Physicians may be discouraged by the small number of cases for whom they can make a positive contribution. There are more than 125 different medical conditions which are associated with mental retardation. Yet, we usually are unable to say with confidence which of these conditions, if any, pertain to a specific

retarded child. The number of retarded children who can be benefited by medical treatment is exceedingly small. This should not be interpreted to mean that retardation is a problem outside the province of the physician. In spite of our limitations, the physician is the key figure in diagnosis, treatment, and counseling.

Perhaps the physician's chief role is as a counselor to parents. There are few things so shattering to family stability as the knowledge that a child is retarded. The resistance of parents to accept their child's handicap, their fear of social stigma, or their refusal to participate in management programs can disturb their own mental health as well as their child's. No less disturbing is the parent who believes that if a normal child can learn something with an ounce of effort, a retarded child can learn the same thing with a pound of effort. They attempt to compensate for their child's handicap by long and tedious hours of drilling. They succeed only in diminishing the child's true potential by creating emotional disturbances and antipathies toward subsequent more controlled efforts at education.

Some of the most important ways of influencing a parent's attitude toward mental retardation and specifically toward his own handicapped child are the physician's techniques of history taking, physical examination, and investigative work-up, and the interpretation of these findings to parents. That these procedures may have an adverse effect on parental attitudes may be attested to by the great numbers of parents who "shop" from one physician to another, or one "healer" to another, not receiving the satisfaction and assurances they need, and becoming increasingly hostile and resistant to medical opinion.

Several principles may be followed in the study of any child suspected of being mentally retarded. Ample time should be provided. A frequent complaint made by disappointed parents is, "How does he know our problem? He was with us only a few minutes." The few minutes may be sufficient to diagnose mongolism and to render a reasonably accurate prognosis, but they are not sufficient to inspire confidence nor to learn the problems of a family.

Whenever possible, both parents should be included in the study sessions. Too often one parent is left to defend a medical opinion to a hostile spouse with unanswered questions of his own.

Attempts to "sell" an idea, or to convince parents of the truth of a diagnosis or a prognosis, or of the advisability of a certain disposition, usually are not successful and serve only to promote parental resistance. Careful review of the developmental history and comparison of accomplishments of the patient with his chronological peers will indicate the handicaps to the parents as well as to the doctor.

Average parents are aware that their child is retarded, though they seldom mention this in presenting their complaints. Once parents are helped to express their beliefs or fears, especially if the study has substantiated them, the physician should be unhesitant in confirming them. Equivocation, unnecessary delay, and false reassurances are disservices equal to too much hasty and ill-considered direct advice. Frequently parents receive the news that their child is retarded with a sense of relief; they have known this for many years but have been unable to get professional confirmation.

Many parents, in general accepting their child's handicap, cling to the notion of his superiority in some narrow achievements, usually mechanical abilities, and usually destructive ones, such as dismantling clocks. This is frequently interpreted by parents as scientific curiosity. Parents of older retarded children are likely to give histories of normal early motor development. These may be true. With the passage of time, many parents need to convince themselves that they produced a normal child and gave him a normal start in life; that the world has somehow changed him to a retarded child.

Considerable time should be spent in discussing probable etiologies. Parents want an explanation for their child's retardation. A definite etiologic diagnosis can seldom be given. It is important in these instances to dwell at some length on etiologies which are felt *not* to pertain. Some parents are comforted by learning that no known deficiencies of diet or care during pregnancy were at fault, and that no amount of skilled medical care has succeeded in preventing most kinds of retardation. Parents need to be educated a little about the frequency and kinds of retardation; and they need to know a little about our ignorance of the causes. In planning for the care of a retarded child, parents find it helpful not only to accept the child and his deficiencies but to accept the fact that medical science may have nothing to offer that will substantially alter the developmental pattern of the child.

This brings us to a consideration of what *can* be done about it. Parents have not only the right but also the responsibility for deciding what is to be done for or with their child. This right is respected by the physician. However, the physician has the responsibility to help the parents think through their problems. He does this by considering with the parents all possible resources and plans of action and the effects these plans may have on all members of the family.

The problem of institutional care should certainly be discussed, even when this seems like a remote prospect to parents and physician. It is likely that someone, perhaps another physician, will at some

time urge parents to put their child in a training school. Parents should have explored this course of action sufficiently that such urging will not threaten their family security. So few people can afford the fees of private schools that institutionalization usually means placement in a state school. This may be equated in the minds of parents with "confinement" or "putting the child away." The whole concept may be so repugnant that parents may cling to a child who might actually better be cared for in a training school. Other parents may react with less vehemence but with equal determination in feeling that they are duty-bound to care for their own child—to live with their shame. Parents can be spared these reactions if the physician presents to them the idea that state schools are resources, which fortunately are available and which should be taken advantage of, when that plan seems advisable, just as public schools are resources for most normal children.

The "training" aspect of state schools may hold a false attraction for some parents. The training may be excellent, but I doubt that it is ever as helpful as a loving family environment and a special community program. In actuality, most children are in training schools for some reason in addition to their retardation. That reason is commonly a disrupted family.

Intact families making plans for a retarded child should weigh the advantages of state school placement, along with other resources, not only insofar as the needs of the retarded child are concerned but also considering the total needs of every family member. The final decision should be influenced as little as possible by guilt at "putting the child away," or by fears that normal children will be adversely affected by association with their retarded sibling.

These are fears related to institutionalization which are frequently encountered. There are many others which should be ventilated before the family can make any final decisions. The physician's role should be to support them in their decision, not only at the time of the initial work-up but on a continuing basis. The child's parents benefit from sympathetic understanding and gradually develop a more complete acceptance of the reality of their situation.

Together with the continuing support which parents receive from their physician, they get tremendous support from each other. Many communities now have organizations for parents devoted to the education of retarded children or pertaining to them. Here they learn the extent of the problem; the fact that the misfortune affects families irrespective of economic, social, and intellectual attainment, that their problems are being faced and perhaps solved by others. They learn to talk about their own problems, to let the skeleton out of the closet. Wherever these



parents' groups are in operation, parents who are suitably prepared may profitably be referred to them.

There are a number of popular misconceptions about retardation which are important to correct whether one is working with individual parents or groups of them. One of these misconceptions has to do with understanding mental age. Occasionally a parent has been told that his child is functioning at 50 per cent of his expected performance, and that he will always do so. This parent may find false comfort in the thought that his child at 30 will have the mental capacity of a 15-year-old, and that won't be so bad.

More frequently parents are told that their child will ultimately achieve the mental age of, say, a six-year-old. They interpret this as meaning that their child's skills and fund of knowledge will never be greater than a normal six-year-old child's, and that his accomplishments will cease after that time. An adult who has had the mental age of a six-year-old for a great many years is not the same as a first-grade child. Average adults have the mental age of 14-year-olds. This does not mean that new knowledge and new skills have not been acquired throughout life. Neither do retarded children reach a saturation point. They continue to learn, but at their own reduced rates.

Parents are apt to tack the word "special" in front of training, and think that educators have developed techniques, different from those used with normal children, that will miraculously correct retardation. This unfortunately is not so. Parents are apt to feel that their young child is retarded only because his muscle control is poor, or that a somewhat older child appears retarded only because he doesn't speak well; that if through *special* training the child could be taught the mechanics of talking, he would say smart things. These are notions that cannot be easily turned aside, and there is no formula for answering them except patient understanding.

Finally, many parents and some professional people have misconceptions about the training goals for retarded children. Parents need help in understanding that the usual school curriculum is not their child's dish, even at a decelerated pace. Retarded children, through diligent effort, may acquire a reading vocabulary of say 300 to 400 words, after which they can be handed a comic book. Is it not more important for these children to read "stop" and "go," "men" and "women," to count change, to drive a nail straight, and to meet people graciously?

We talk as though all retarded children are educable, or trainable, and in some measure they are. The child whose developmental pace keeps him at the infantile level is no less a community medical problem than his less severely damaged neighbor. We cannot assume that all low-grade defectives will be cared

for in institutions. (And even if they were, their parents' needs for support would not be lessened.)

Institutionalization is the least satisfactory and the most expensive means of caring for retarded children. Our state institutions can accommodate about one retarded child in 20; and the fact remains that most parents prefer to care for their handicapped child in the family unit. This is fortunate so long as parents can be helped to apportion their energies, affection, and money wisely. We cannot turn these responsibilities over to social workers, welfare agencies, special classes, or visiting nurses, even where these resources exist. These people can be of tremendous help, but they too will rightfully look to the family physician for guidance.

Dr. Grover Powers has written: "Should not the physician act on the precept that a doctor is a doctor at all times and in all situations where there is suffering, and not find interest and resource solely where cure is probable! Should not he develop skills and technics here as in other areas of medical practice whereby he may help parents in their hour of black despair and offer them requisite time and encouragement to talk over implications and potentialities and possibilities and also give them insight into community resources?"

An enlightened and agitated public is knocking at the doors of our offices, hospitals, and schools demanding that something more be done for handicapped children. Something shall be done. Physicians in cooperation with other professional people must see that the best care is given and that community leaders are helped to establish the best programs. If this responsibility is shirked, we invite quackeries and waste of public and private funds on easy solutions which will work a hardship on physicians, teachers, and, most important of all, on a large and deserving group of children.

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# Primary Carcinoma of the Vagina

## Results of Treatment by Radiation

CHARLES A. HUNTER, JR., M.D., *Kansas City*

Primary carcinoma of the vagina is a rare malignancy of the female genital tract which has been attended by a high mortality rate. Of all gynecological cancers, malignancies of the vagina rank second only to Fallopian tube carcinomas in the lowest percentage of five-year survivals. Because of the infrequency of this disease, little attention has been given the subject.

This presentation is a review of all proved cases of primary malignancies of the vagina seen at the University of Kansas Medical Center in the past 25 years (1932-1957). A few cases, initially thought to be primary carcinoma of the vagina, were excluded from this series after further study proved them to be primary carcinomas of the cervix with the vagina secondarily involved.

The purpose of this review is to analyze our own material critically and report the results of therapy.

*Incidence.*—During this 25-year-period, 33 proved cases of primary carcinoma of the vagina have been treated at the University of Kansas Medical Center. Within the same period of time, 1,512 patients with gynecologic cancer were admitted to this institution. The incidence of primary carcinoma is 2.2 per cent of all female genital tract malignancies.

*Age.*—Ages of patients in this series range from 32 to 84 years, with the majority in the sixth and seventh decades of life at the time of the original diagnosis (Table I).

*Parity.*—Table II shows the distribution of parity in these 33 patients. Approximately three-fourths of the patients had delivered children.

*Symptoms and Clinical Course.*—Symptoms are bleeding or brownish-color discharge as a result of ulceration of the vaginal mucosa. Thirty patients in

this group stated that these were the first symptoms. In the remaining three, the initial symptom was finding a "lump in the vagina." Most often, the initial bleeding is insidious. In two patients, however, the initial bleeding was so severe it required them to seek medical attention immediately. Symptoms of pressure or pain in the pelvis are late to appear.

**A critical summary of 33 cases of primary carcinoma of the vagina treated at the University of Kansas Medical Center in the past 25 years has been presented. All were treated with radiation which has resulted in an absolute five-year cure rate of 18.5 per cent—a shockingly low cure rate. The major factor responsible for the universally poor results of this disease is discussed. The complete extirpation of all cancer-involved tissues when applicable is recommended as primary treatment for primary carcinoma of the vagina. Radiation therapy should be reserved for those not amenable to these radical surgical procedures. It is hoped by such a program that this disease will yield results comparable to those of other malignant lesions of the female genital tract.**

The average duration of symptoms before treatment was 6.3 months. The extremes of this period were one day in two patients and 30 months for another. Reports in the literature showed a similar period of delay. Often these tumors reached considerable size before producing the initial symptom of bleeding.

TABLE I  
AGE DISTRIBUTION

Age	No. of Patients
30-39	3
40-49	5
50-59	7
60-69	12
70-79	3
80 & over	3

TABLE II  
PARITY

Parity	No. of Patients
0	8
1	6
2	3
over 2	15
unknown	1

TABLE III  
LOCATION OF PRIMARY VAGINAL LESION

Upper Third of Vagina		13
Anterior wall	7	
Posterior wall	6	
Middle Third of Vagina		5
Anterior wall	4	
Posterior wall	1	
Lower Third of Vagina		9
Anterior wall	5	
Posterior wall	4	
Annular		3
Unknown		3

*Location of the Tumor.*—Although the growth may be located anywhere in the vagina, the majority of authors state that the most common location of the primary vaginal carcinoma is in the upper third of the vagina. In the present series, 13 (39.4 per cent) involved the upper third of the vagina and 9, or 27.4 per cent, involved the lower third. In three cases no definite location of the tumor could be determined due to rather extensive involvement of the vagina. An annular type of growth, which encircled the vagina, was noted in three instances (Table III). The location of the tumor in the vagina has important therapeutic considerations and will be discussed later.

The smallest vaginal tumor described was 1 cm. in diameter, and the largest was depicted as "the size of an orange." In most cases, size was not adequately described.

*Lymphatic Drainage.*—The lymphatic drainage of the vagina may be divided into three parts: upper, middle, and lower third (Figure 1). The lymphatic drainage of the upper third of the vagina is similar to the cervix: parametrial; obturator; hypogastric;

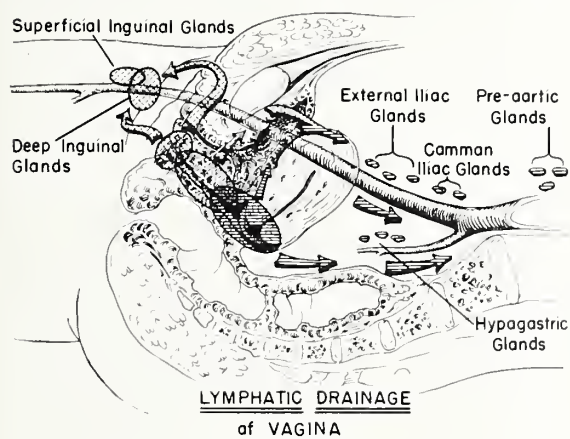


Figure 1. Lymphatic draining of vagina.

and iliac nodes. The mid-portion of the vagina is drained primarily by the perivesical lymphatics to the external iliac chain. However, Way<sup>1</sup> points out that tumors in this area may drain in either direction. In the lower portion of the vagina, the lymphatic drainage is similar to the vulva and involves the superficial and deep inguinal nodes. The lymphatics surrounding the vagina freely anastomose and much overlapping of the lymphatic drainage is apparent. It has been demonstrated that a primary tumor located in the upper third of the vagina may involve the inguinal lymph nodes without involvement of the lower half of the vagina. A clear knowledge of the lymphatic drainage of the vagina is essential as a basis of treatment.

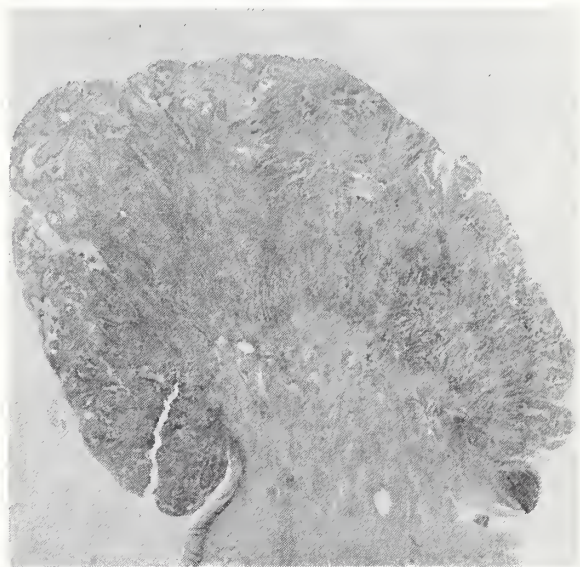


Figure 2. Everting or papillary type of epidermoid carcinoma of the vagina.

*Pathologic and Histologic Characteristics.*—Gross characteristics of these tumors have been classified by Healy<sup>4</sup> into three groups: everting or papillary carcinomas; infiltrating or inverting carcinomas; and annular or surface tumors. All three types were encountered in this series.

Everting tumors are the most frequent type encountered, according to the literature. Some authors state that this type of tumor outnumbers other forms by 2 to 1. There were 19 cases of everting tumors in this series. These tumors are characterized by a polypoid growth of carcinoma projecting above the surface of the surrounding epithelium. Microscopically, the edges of the tumor are fairly clear cut and have a tendency to show minimal invasion in the immediate underlying tissue (Figure 2).

The infiltrating type of tumors clinically appear as firm, ulcerative lesions with considerable induration into the submucosal tissues. The tendency for lateral





Figure 3. Infiltrating type of epidermoid carcinoma of the vagina.

growth in this lesion has been clearly described by Douglas.<sup>5</sup> As shown in Figure 3, the infiltration of the submucosal tissues with groups and cords of tumor cells is much greater in area than would be presumed by the size of the surface lesion. Accompanying this diffuse tumor infiltration, there is a marked inflammatory reaction which tends to accentuate the limits of this induration. As suggested by Way,<sup>1</sup> Douglas,<sup>5</sup> and Smith,<sup>6</sup> the induration of the pelvic tissues surrounding this malignancy may clinically

be much greater than the actual spread of the tumor. The clinical significance of this finding will be discussed later.

The annular type of tumor growth is manifest clinically by firm induration encircling the vagina and tends to develop ulceration of the mucosa rather late in the disease. Douglas described one case in which he found the malignancy mainly a surface lesion with a large portion represented as intraepithelial in extent. Two cases in this series show marked field changes of the basal cells in the vaginal mucosa (Figure 4 and Figure 5).

All of our 33 cases of primary carcinoma of the vagina are epidermoid carcinomas. Most of these tumors are histologically moderately or highly undifferentiated, only five showing a tendency to keratinization and pearl formations. No attempt was made to grade the tumors into degrees of differentiation.

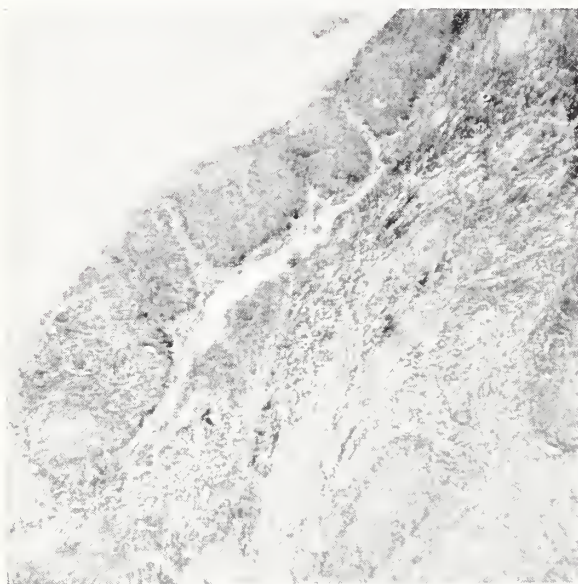


Figure 4. Annular type of epidermoid carcinoma of the vagina. Note the thickening of the vaginal epithelium.

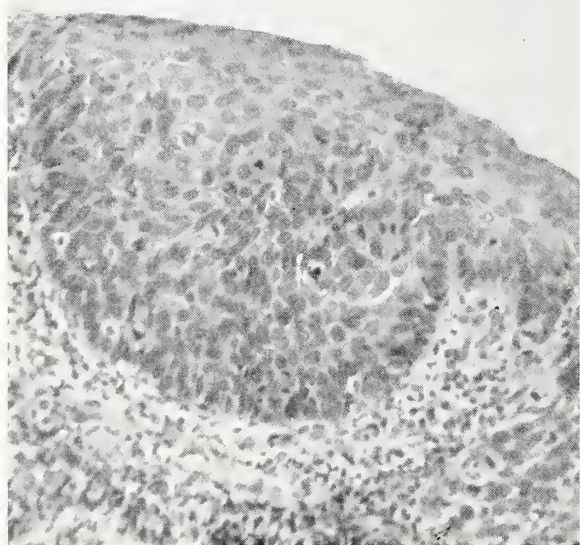


Figure 5. Annular type of epidermoid carcinoma of the vagina. Higher power view of Figure 4. Note the marked field changes of the basal cells.

*Stage of the Disease.*—Attempts to find a satisfactory method of staging this malignancy have not been successful. Courtial<sup>7</sup> divided his cases into three stages: Stage I—tumor limited to the vagina and not involving more than half of the wall from which it arises; Stage II—tumor extending over more than half of the anterior or posterior vaginal wall with perivaginal soft tissue infiltration, but without involvement of bladder or rectal mucosa; Stage III—tumor infiltrating the rectum, bladder, or urethral mucosa, extending to the vulva or with fixation to pelvic bone.



Recently Douglas<sup>5</sup> has raised serious question as to the adequacy of determining the extent of spread of primary carcinomas of the vagina by clinical palpation. In a small but well documented study he reported failure to find regional node metastasis in any of his operated cases in which nodal involvement was suspected clinically. The "clinically involved nodes" revealed only evidence of inflammation, probably secondary to inflammatory diseases in the vaginal tissues surrounding the tumor. Likewise, he stated that if spread is suspected from thickening of the rectovaginal septum or parametria, the likelihood of inflammatory induration should be kept in mind.

In view of the above discussion, the cases in this series are divided clinically into two groups: (1) tumor localized to the vaginal mucosa or involving the immediate surrounding tissues and not fixed (localized); (2) tumor extended to involve the bladder or rectal mucosa or fixation of tumor to the bony pelvis and palpable inguinal node involvement (advanced).

Twenty of the 33 patients had only clinical involvement of the immediate surrounding tissues of the vagina and would fit into the above described localized stage. By such a staging, it would seem that this would be the favorable group.

In the unfavorable or advanced stage there were 12 patients. This group included those with fixation to the bony pelvis, palpable inguinal node involvement, or evidences of distant metastasis. Two patients had distant metastasis to the bone by x-ray evidence. One had metastasis to the lumbar vertebrae and is still alive 11 years after her initial therapy. The other patient had metastasis to the femur. Other terminal cases had metastasis to the lung, liver, and adrenals proved by autopsy.

## Treatment and Results

The primary treatment of carcinoma of the vagina has been by radiation in most of the larger cancer clinics. In this group of patients, 32 had only irradiation therapy. In one patient extensive (but not radical) pelvic surgery was performed, followed by deep x-ray therapy.

Of the 32 patients treated with radiation, six received only external deep x-ray therapy to the pelvis. Three patients were treated by external deep x-ray therapy to the pelvis plus intravaginal x-ray therapy. One patient was treated with intravaginal radium application alone. The amount of radiation given to a patient has varied widely in this series, which may be partially accounted for by the fear of fistula formation because of the proximity of the bladder and rectum.

The five-year survival rate among the 27 eligible

cases in this series is 25.9 per cent. If the two patients who are alive but with evidence of cancer are excluded, the absolute five-year "cure" rate would be 18.5 per cent. This is compared to Courtial<sup>7</sup> who reports the highest five-year survival rate of 45.4 per cent in a series of 22 patients with primary vaginal carcinoma. Other reports in the literature vary from 0 per cent<sup>8</sup> to 27.5 per cent.<sup>9</sup>

Complications resulting from therapy have been rather high in this series. The most frequent complication is radiation sickness, which has been classified as marked in 9 patients. The subsequent development of rectovaginal fistulae occurred in four patients, and three developed vesicovaginal fistulae. One patient developed a large perirectal abscess. Five patients were subjected to a colostomy as a palliative procedure.

## Discussion

It is apparent from this study that our management of primary carcinoma of the vagina leaves much to be desired. We have been lulled into thinking of this disease as being similar to the more commonly seen problem of carcinoma of the cervix. The pitfalls in this reasoning become apparent when the anatomical location and the lymphatic drainage are considered. As Stanley Way<sup>1</sup> stated, "...when we meet a small carcinoma of the vagina involving the bladder, we tend to think of it as being hopelessly advanced. Now this is not always the case."

The radiation administered to these patients has varied widely, and we did not always deliver a cancericidal dose to the tumor. Even today, there is no commonly accepted method of delivering adequate radiation to these tumors. There are wide differences of opinion among radiologists concerning the problem of total dose, techniques of application, and duration of therapy for treatment of carcinoma of the vagina. Perhaps with newer radiotherapeutic methods these problems may be overcome.

Recently a few of the larger cancer clinics have been employing radical pelvic surgery, in selected cases, as primary treatment of this tumor. If one considers the above comments on the lymphatic drainage and stage of the disease, it becomes obvious that any surgical procedure would, by necessity, have to include at least complete colpectomy, radical hysterectomy, and radical pelvic lymphadenectomy. If either the bladder or rectum is involved, removal of the involved organ will be necessary. Certainly if the primary cancer is located in the lower third of the vagina, due consideration of radical excision of the inguinal glands would be important. These operative procedures are formidable and must be individually planned with the aim of producing a cure. The applicability rate of this type of radical surgery is

limited because of the large number of poor-risk patients. Smith,<sup>6</sup> Way,<sup>1</sup> and Douglas<sup>5</sup> have reported their results of radical surgery for treatment of primary carcinoma of the vagina. Admittedly, the combined series represent a small number of patients, but the results appear encouraging when compared to the low salvage attained by radiation therapy.

Until satisfactory radiotherapeutic methods are developed, the author believes that every woman with this disease should be considered as a possible candidate for radical pelvic surgery as primary treatment. For patients in whom surgery is contraindicated, well administered intravaginal radium and deep x-ray therapy should be given.

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The family of man has been in existence for a long time. Civilization is twelve thousand years old, they tell us, and that there may have been prior civilizations. The Hebrew religion is somewhat short of six thousand years old; and Christianity a little less than two thousand.

This (February 16-23, 1958) is the twenty-fifth anniversary of Brotherhood Week. Twenty-five years in six, twelve or two thousand are as a split second in eternity.

Man cannot live by bread alone. The things of the spirit are the only imperishables we acquire in this short life journey. Brotherhood is not a matter of belief or teaching . . . far too many of us believe, but do not *know*. There is a difference. Few of us really learn. Brotherhood is a quality of the spirit.

Lip service is not enough. Tolerance . . . that dreadful word . . . of one another's beliefs is not enough. Brotherhood must be as deep rooted in the spirit as a natural involvement, outwardly expressed in service as the worship of God.

How profoundly I wish and pray that when the fiftieth anniversary of Brotherhood Week comes, *there will be no need for it!*

—Faith Baldwin

# Asian Influenza Vaccine

## *How Effective Was It in Prevention of Acute Respiratory Infection at the University of Kansas Medical Center?*

ROBERT A. JORDAN, M.D., and TOM D. Y. CHIN, M.D., *Kansas City*

During October and November 1957, an epidemic of acute respiratory illness affected nearly 40 per cent of the more than 2,000 students and employees at the University of Kansas Medical Center. At the same time a similar outbreak of respiratory illness spread through the Greater Kansas City area.

Specimens consisting of ten throat washings and seven paired sera were obtained from ten patients seen at the Student Health Service of the Medical Center during the peak of the epidemic. Asian influenza was demonstrated in seven of these patients. The Asian strain of influenza virus was recovered from the throat washings in six patients and four-fold or greater increase in hemagglutination-inhibition (HI) or complement-fixing (CF) antibodies was detected in five patients.

In addition, 14 throat washings obtained from 22 patients living in the Greater Kansas City area also were positive for Asian influenza virus. On the basis of these findings, it appeared that a large proportion of the respiratory illnesses occurring during this period were actually Asian influenza.

Since roughly 50 per cent of the Medical Center students and employees were inoculated with Asian influenza vaccine and the remaining group did not receive the vaccine, it appeared worthwhile to compare the incidences of respiratory illness in these two groups as a means of estimating the effectiveness of the vaccine.

### Methods

Although some 200 cases of acute respiratory illness were treated during this period at the Medical Center Health Service, a much greater number of patients consulted private physicians, or administered self-treatment at home. In order to collect sufficient data for study, a questionnaire was prepared for the purpose

of obtaining the following information: whether or not the individual had recently (since August 15, 1957) suffered an influenza-like illness; the date of onset, duration, and symptoms experienced in any such illness. A check-list of symptoms was printed on the questionnaire. Each person was also requested to state whether or not he had received the Asian influenza vaccine, and, if so, to give the date of inoculation.

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**In a study of the effectiveness of vaccination with 200 C.C.A. units of the Asian virus in an epidemic of acute respiratory illnesses occurring among employees and students at Kansas University Medical Center during the fall of 1957, it was learned that 63 per cent were protected. Details of the study are presented.**

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These questionnaires were sent to 2,000 employees and students during the week following December 10, 1957. All of the various departments and student groups at the Medical Center were included. The student groups included 142 student nurses, most of whom reside in the Nurses' Home which provides for two students per room. The survey also included 309 medical students; however, none of them live in large dormitories or rooming houses. Most of the remaining students and employees at the Medical Center reside in private homes or in apartment houses. No attempt was made to classify the Medical Center population into age groups; however, there were no individuals less than 18 years of age in the study.

Approximately 1,000 employees and students were inoculated with the Asian influenza vaccine at the Student Health Service of the Medical Center during the first 15 days of October 1957. A monovalent vaccine containing 200 C.C.A. units per ml. of the A/Japan/305/57 strain of influenza virus was administered in a dose of 1.0 ml. subcutaneously. Several persons obtained the vaccine from other sources (approximately 6.0 per cent of the total, according to the questionnaire data).

From the Communicable Disease Center, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare; Department of Internal Medicine, University of Kansas Medical Center, Kansas City 3, Kansas.

Dr. Jordan is Assistant Professor of Internal Medicine and Director of Health Service. Dr. Chin is Assistant Chief, Kansas City Field Station, Communicable Disease Center, PHS, Kansas City, Kansas.

Acknowledgment is made of the technical assistance of Clifton R. Gravelle, Kansas City Field Station, and Jean Weston, Hixon Memorial Laboratory, University of Kansas Medical Center.



## Results

There were 1,310 responses from the original 2,000 questionnaires distributed. The Asian influenza vaccine had been received by 640 of the 1,310 persons, and 651 persons were not vaccinated. An additional 19 persons had been vaccinated but became ill with respiratory illnesses less than 10 days after inoculation. Inasmuch as it has been shown that a significant increase in antibody usually does not occur in less than 10 days after inoculation, these 19 cases were excluded from consideration for evaluation of the vaccine effectiveness.

Recent respiratory illnesses were reported by 516 of the 1,310 persons answering the questionnaire, or an incidence of 39.4 per cent. A more severe illness with fever, myalgia, and respiratory symptoms occurred in 406 of the 516 individuals who were ill. The remaining 110 reported milder illnesses with respiratory symptoms but no fever. Clinically, most of the illnesses in the latter group would ordinarily have been classified as colds, except in 25 patients who also experienced gastrointestinal symptoms of diarrhea, frequently with nausea and vomiting.

The weekly incidences of the two groups of illnesses described above, based on the dates of onset, are plotted on the graph in Figure 1, where it may be observed that the peak of the epidemic of respiratory illnesses with fever was reached sharply during the second week of October 1957. This was about one week following the institution of influenza vaccination on a large scale at the Medical Center. It may be observed that there was some increase in the incidence of milder, non-febrile illnesses during the same period. However, the general contour of the curve is rather flat, and this observation leads us to believe that many, if not most, of these milder illnesses were probably

caused by infectious agents other than Asian influenza virus.

Among the 640 vaccinated individuals there were 90 cases of febrile respiratory illnesses, an incidence of 140.6 cases per 1,000. Each of these patients became ill at least 10 days after being vaccinated. Febrile respiratory illnesses were reported by 306 of the 651 unvaccinated persons, or an incidence of 470.0 cases per 1,000. Assuming that the incidence of febrile respiratory illnesses in this population during the stated period of observation was 470 cases per 1,000, then the expected number of such illnesses in the vaccinated group would have been 301 cases instead of the 90 cases actually reported. By using these figures the method of vaccination employed was estimated to have been 70 per cent effective against this group of febrile respiratory illnesses.

Ten individuals reported having two separate febrile illnesses occurring at least one month apart. Nine of the ten patients had not been vaccinated, and the tenth patient was vaccinated less than ten days prior to the onset of his second illness.

Mild, non-febrile respiratory and gastrointestinal illnesses were reported by 43 of the 640 vaccinated individuals, or 67.2 cases per 1,000. The incidence of such illness among the 651 unvaccinated persons was 58 cases, or 89.1 cases per 1,000. The differences between these two groups were so small that they did not appear to be statistically significant ( $p=0.14$ ). This observation further leads us to believe that the majority of these non-febrile illnesses were not Asian influenza.

If all of the febrile and non-febrile illnesses are combined, then there were 133 cases of respiratory illness in the vaccinated group of 640 persons, or 207.8 cases per 1,000; and there were 364 cases of respiratory illness in the unvaccinated group of 651 persons, or 559.1 cases per 1,000. Accordingly, using the same method of calculation previously described, there should have been 358 cases of respiratory illness rather than the 133 cases reported in the vaccinated group; thus, the method of vaccination employed was estimated to have been 63 per cent effective against all types of acute respiratory illness.

## Comment

This particular study is immediately vulnerable to two criticisms: (1) that the questionnaire method of collecting data is admittedly somewhat inaccurate, and (2) the quality of the statistics would have been greatly improved if it had been possible to obtain a larger number of virological studies. Despite these criticisms, it appears likely that the majority of cases of acute respiratory illness with fever were caused by the Asian influenza virus. It is also probable, for reasons already expressed, that the majority of the milder

Figure 1. WEEKLY INCIDENCE of RESPIRATORY ILLNESS at KUMC for 17 WEEKS, 8/15/57 to 12/5/57.

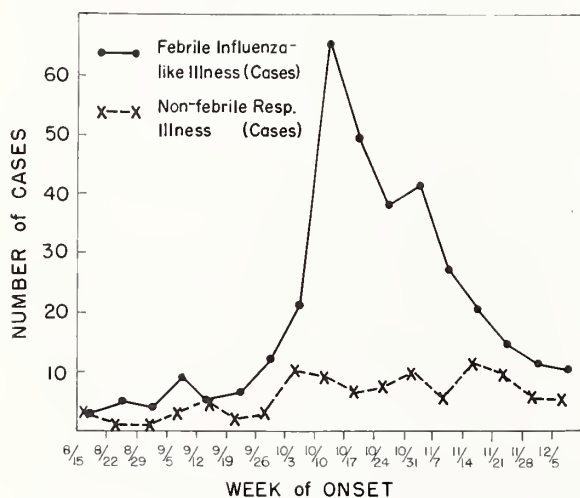


TABLE 1  
INCIDENCE OF RESPIRATORY ILLNESS AMONG EMPLOYEES AND  
STUDENTS OF UNIVERSITY OF KANSAS MEDICAL CENTER BY  
VACCINATED AND NON-VACCINATED GROUPS, FALL, 1957

<i>Population Group</i>	<i>No. of Persons</i>	<i>Febrile Resp. Illnesses</i>		<i>Non-Febrile Resp. Illnesses</i>		<i>Total Resp. Illnesses</i>	
		<i>No. of Cases</i>	<i>Rate per 1000</i>	<i>No. of Cases</i>	<i>Rate per 1000</i>	<i>No. of Cases</i>	<i>Rate per 1000</i>
Vaccinated . . . . .	640	90	140.6	43	67.2	133	207.8
Non-Vaccinated . . . . .	651	306	470.0	58	89.1	364	559.1
TOTAL . . . . .	1291	396	306.7	101	78.2	497	384.9

illnesses without fever were not Asian influenza, although, in the absence of virological data, this belief can be accepted only as a clinical impression.

The Commission on Influenza of the Armed Forces Epidemiological Board<sup>1</sup> recently reported on the results of field studies executed by four different groups of investigators concerning the effectiveness of vaccines against Asian strains of influenza. The degree of protection in four groups inoculated with 200 C.C.A. units of Asian virus ranged from a low of 42 per cent to a high of 60 per cent.

Bell and his associates,<sup>2</sup> working with human volunteers, found a similar degree of protection in vaccinated persons challenged experimentally with a live virus (influenza A/Valley Forge/57) which is antigenically similar to the Asian strain virus.

In our own study, when the numbers of all respiratory illnesses, both febrile and non-febrile, were combined, the degree of protection afforded by the same method of vaccination approximates that of the aforementioned reports, 63 per cent. On the other hand, if only febrile respiratory illnesses are considered, the degree of protection in vaccinated persons appears to be somewhat better, 70 per cent.

### Summary

This report describes a study of the effectiveness of

vaccination with 200 C.C.A. units of the Asian virus in an epidemic of acute respiratory illnesses occurring among employees and students at the University of Kansas Medical Center during the fall of 1957.

Among 640 vaccinated persons the rate of febrile respiratory illness was 140.6 cases per 1,000, as opposed to a rate of 470 cases per 1,000 among 651 unvaccinated individuals. In this group of illnesses the method of vaccination was estimated to be 70 per cent effective.

When all respiratory illnesses, both febrile and non-febrile, were totaled, the incidence was 133 cases in the 640 vaccinated individuals, or 207.8 per 1,000; and, in the 651 unvaccinated persons, the incidence was 364 cases, or 559.1 per 1,000. Thus, the total over-all effectiveness of the vaccine against all respiratory illnesses was estimated to be 63 per cent.

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Life affords no higher pleasure than that of surmounting difficulties, passing from one step of success to another; forming new wishes and seeing them gratified. He that labors in any great or laudable undertaking has his fatigues first supported by hope and afterwards rewarded by joy.

—Samuel Johnson

# Caustic Esophageal Stricture

## *A Review of the Literature and a Suggested Plan of Treatment*

R. E. BRIDWELL, M.D., *Kansas City*

Stricture of the esophagus, due to caustics, has long been a problem. The total number of cases is smaller today than 25 years ago, partly due to the decreased use of lye in the home and partly due to general public enlightenment on medical problems. However, it still remains a serious problem, and there is nothing more distressing to the patient, family, and physician than the prolonged treatment of an esophageal cripple.

The ultimate goal in this problem would be to prevent the accidents that lead to strictures, by education and legislation. Since this goal has not been accomplished at present, nor will it be reached in the foreseeable future, it is important to search for new and better ways of dealing with chemical burns of the esophagus.

The seriousness of this problem can be appreciated by looking at some of the statistics of lye burns of the esophagus. Slightly more than 70 per cent of cases dealing with an esophagus burned by lye can be expected to develop strictures if untreated. It has been further stated that after the ingestion of lye, 58 per cent of patients experience severe dysphagia within one month, 80 per cent within two months, and, by the time eight months have gone by, 99 per cent of the ones who are going to develop strictures have done so. However, one must bear in mind that once the esophagus has been burned, a stricture may develop any time in the life of the patient. Stothers described the development of sudden acute impaction as long as 40 years after the accident.

The severity of the lesion depends on several variable factors. Among these are the nature of the agent injected, the quantity, the concentration, and the time of contact of the agent with esophageal mucosa.

Daly,<sup>2</sup> in a recent article, reports that a wide variety of agents with lethal possibilities had been swallowed. Among these were lye, Drano, washing soda, phenol, Lysol, formaldehyde, ammonia, smelling salts, Clorox, sulfuric acid, nitric acid, lactic acid, acetic acid, potassium permanganate, bichloride of mercury, and iodine. I would like to add Clintest tablets to this list. I will have more to say later about this.

The chemical nature of the agent ingested has a great deal to do with the prognosis of the individual

case. For example, alkalis have the ability to penetrate to the deeper layers of the esophagus because they destroy living tissue by a liquefying necrosis. On the other hand, acids produce a coagulative type of necrosis of the superficial layer of the esophagus, thus preventing the corrosive agent from reaching the underlying tissues by eschar formation. It is interesting to note that Lysol is frequently taken by individuals attempting suicide, but because of its chemical nature it produces only a superficial esophagitis. Healing of Lysol esophagitis is rapid and this agent seldom produces stricture formation. Iodine usually produces extensive superficial burns of the esophagus, but, again, most of these heal without stricture formation in the esophagus.

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**Since a stricture may develop at any time in the life of a patient whose esophagus has been burned by lye, it is important that the best known therapy be utilized. More than 70 per cent of such patients, if untreated, can be expected to develop strictures. An outline of therapy is presented.**

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Another factor that must be considered in the severity of the lesion is the concentration of the offending agent. The more concentrated the agent, the greater the severity of the injury, both in depth of penetration and extent. The experimental studies of Krey, as reported by Daly,<sup>2</sup> show there is a definite quantitative relationship between the depth of penetration of lye and its concentration, as follows:

Normal (3.8 per cent) solution of sodium hydroxide with a 10-second contact with esophageal mucosa produced necrosis of the mucosa and submucosa and involved some fibers in the inner longitudinal layer in rabbits.

3N (10.7 per cent) solution of sodium hydroxide produced necrosis extending to the circular muscle.

5N (16.4 per cent) sodium hydroxide produced necrosis extending to the outer longitudinal muscle.

7N (22.5 per cent) sodium hydroxide produced necrosis extending throughout the whole esophageal



wall and also affected, to some extent, the periesophageal tissues.

These figures take on a special meaning when one realizes that caustic compounds commonly found in the home contain from 10 to 50 per cent lye. It is not inconceivable that a concentrated caustic compound taken into the mouth and immediately expectorated could mix with the saliva to form a one normal solution of sodium hydroxide. If this were then swallowed, a burn could result that would produce necrosis of the mucosa and submucosa.

The quantity of the substance ingested is also to be considered in the severity of the lesion produced. This is proved by the fact that those individuals attempting suicide ingest a greater quantity of corrosive agent than those who ingest it accidentally and consequently have a greater degree of injury that often will involve the stomach and duodenum.

Various histologic changes take place once a corrosive agent has been in contact with esophageal mucosa. Belinoff has studied these changes in a dog's esophagus burned experimentally. He has divided the process into four stages; necrosis, ulceration, granulation, and scar formation.

In the initial phase there is a zone of intense inflammatory reaction surrounding the area of necrosis. The necrotic tissue sloughs, and this leaves an ulcerating surface beneath. This acute phase usually lasts about two weeks. By the end of one week the esophagus is thick and semirigid because of inflammatory edema. New blood vessels are beginning to form, and a fibroblastic process is initiated. After about 14 days the defects in the sloughing areas are filled in with granulation tissue. Some time in the third week the collagen fibers begin to contract, causing narrowing of the esophagus. Adhesions form between the granulating areas, and thus the scarring process begins to coalesce. After several months healing is accomplished by replacement of the muscularis mucosa and muscular coats with dense fibrous tissue. The epithelium that now covers this area of scar tissue is no longer normal squamous epithelium but is low stratified squamous epithelium, devoid of glands.

A patient who has swallowed a corrosive substance presents a diagnostic problem. First, is there an esophageal burn? It is important to keep in mind that there is no exact correlation between the condition of the mouth and pharynx and the extent of injury to the esophagus. This was brought out in an article by Daly who states: "A patient may have severe burns of the mouth and pharynx, without having any burns in the esophagus. Conversely, and much more important, burns may be absent in the mouth and pharynx and yet a severe burn of the esophagus be present."

There are two main methods of examination open to the physician to determine the condition of the esophagus. One is x-ray study of the esophagus with barium and the other is esophagoscopy. The first method is of doubtful value in the acute stage before the formation of stricture, but it is a useful method to determine the value of a given treatment once the stricture has developed. Therefore, it boils down to this simple fact: one must do an esophagoscopy to ascertain if there has been esophageal damage.

Esophagoscopy should be done within the first 48 hours after the accident. The "wait and see" doctrine still found in many modern medical texts is deplorable in the light of the modern instrumentation that is available. While esophagoscopy is not without risk, the hazard can be kept to a minimum if the procedure is done carefully and if no attempt is made to insert the esophagoscope through a burned area. In small children and uncooperative adults the esophagoscopy should be done under a general anesthetic to avoid unnecessary trauma to the esophagus.

Before discussing the method of treatment in these cases I would like to present reports of two patients with esophageal burn who were treated at the University of Kansas Medical Center. Then I would like to outline a regimen of treatment that seems reasonable, in the light of modern medical practices, once the diagnosis of esophageal burn has been suspected.

Case 1, Mrs. C. G., a 65-year-old colored housewife, was first seen in the emergency room on November 8, 1955, with the chief complaint of "took some poison."

The present illness began about ten minutes prior to her admittance to the emergency room. She had awakened in the morning with a headache and had taken a Clinitest tablet instead of an aspirin.

Past history revealed that the patient had been known to be diabetic for two years and was on a daily dose of 40 units of NPH insulin. Further questioning revealed that she had suffered from hypertension for several years prior to the diagnosis of diabetes.

When admitted to the emergency room the patient was vomiting and complaining of moderate burning pain in her chest. She was immediately given five glasses of vinegar water and two ounces of olive oil orally. The patient continued to vomit and brought up most of that which she had just taken. The burning pain subsided in a few minutes and she was released after being given another ounce of olive oil.

The patient was again seen in the emergency room three days later, at which time she complained of a lump-like sensation just to the right of the lower sternum. Questioning revealed that she had vomited a small amount of blood in the evening of the day she

was first seen. She had no dysphagia. She was referred to the Ear, Nose, and Throat Section for evaluation.

The patient was immediately hospitalized and esophagoscopy carried out under topical anesthesia. No buccal or hypopharyngeal burns were encountered, but she did have a severe annular burn 26 cm. below the incisor teeth.

When she was admitted to the hospital her blood pressure was 200/120, pulse 80 and regular. She was a moderately obese colored woman. The physical examination was not unusual.

She was placed on a 1,500-calorie liquid diet and given 40 units of NPH insulin each morning. She was started on penicillin, 600,000 units twice daily, and 25 mgm. of cortisone, orally, each four hours. While on cortisone therapy she had blood sugars twice daily and urine sugars four times per day. She maintained adequate diabetic control on the original 40 units of NPH daily. Cortisone and penicillin were continued for ten days.

On the second hospital day the patient was started on prophylactic esophageal bougienage with a 32 F. mercury laden Hurst bougie. The esophagus was dilated twice weekly while she was in the hospital and for the first month following her dismissal. The 32 F. mercury laden bougie passed with ease until one month after the ingestion of the Clinitest tablet, when a definite resistance could be felt 26 cm. below the incisor teeth. On several occasions a smaller bougie had to be passed before the 32 F. would pass.

In the second month of therapy bougienage was carried out once per week and in the third month every other week. The interval between dilations was gradually increased until the last interval was six months. At this time the patient had no dysphagia and no sign of stricture.

The patient had only minimal dysphagia during the first part of therapy and has been maintained on a regular diet since ten days after the accident.

Case 2, Mrs. M. W., a 56-year-old housewife, was first seen, as an emergency patient, the evening of November 12, 1955, with the chief complaint of "can't swallow."

The history of the present illness began one month before. She stated that she had inadvertently swallowed two Clinitest tablets instead of two aspirin tablets. She had almost immediate onset of burning pain in the chest and vomiting. She was seen by her family physician and was given vinegar water.

The family history was essentially negative. Past history revealed no previous hospitalizations or serious illness. It is interesting to note that this patient was not diabetic; it was her husband who was using the Clinitest tablets.

When admitted to the hospital the patient was suffering from complete esophageal obstruction. She was unable to swallow her saliva following the ingestion of a bolus of meat at lunch time. Esophagoscopy revealed an obstructive bolus of meat 30 cm. below the incisor teeth. After removal of the bolus of food, an almost complete stricture of the esophagus at this same area was found. Dilation of the esophagus was then carried out up to 36 F. The patient was then able to tolerate a liquid diet, but she stated that soft foods went down so slowly that she was afraid to eat them.

For the next several weeks the patient was in and out of the hospital numerous times for esophagoscopy and dilation. After six to eight weeks it was possible to pass a 32 F. mercury laden bougie, and she became an out-patient. She tolerated the dilations poorly and was nauseated and complained of abdominal pain, although she was on a liquid and soft diet most of the time. Since the patient lived out of town, the dilations with the mercury laden bougie have been carried out by her family doctor.

The treatment of caustic esophageal stricture by dilation usually spans many years, and many patients require dilation at varying intervals throughout their lives.

In recent years the use of cortisone has been advocated for the prevention of esophageal stricture after a caustic burn of the esophagus. Norman Rosenberg et al.<sup>8,9</sup> report experimental use of cortisone in the prevention of strictures in the rabbit esophagus after lye injury. They feel that cortisone is a potent inhibitor of the tendency to scar tissue contracture in the rabbit esophagus. However, the amount of cortisone used to produce these results would be equivalent to 420 to 500 mgm. per day for a 70 Kg. human. The mortality rate among experimental animals on cortisone alone was high. The concurrent use of penicillin favorably influenced the mortality rate, making it better than the rate when cortisone alone was used. I think one must conclude that use of such large doses of cortisone in the human subject would be dangerous.

Alex Wisskopf,<sup>1</sup> in a recent paper, concludes that cortisone and Terramycin are useful in the prevention of stricture formation in experimental burns in a dog's esophagus. He states that no stricture developed in the treated group, but all control animals living after 35 days developed strictures.

In attempts at the University of Kansas Medical Center to repeat this and similar experiments we have met with such severe mortality rates among control animals that we cannot predict with any accuracy the number of strictures that could be reasonably expected.

In reviewing recent literature one finds several

reports of the use of cortisone and antibiotics in treating human esophageal burns.<sup>5</sup> Some patients developed strictures and some didn't while on cortisone therapy. Many of the cases that were reported as successful were not documented with esophagoscopy, and it is certainly possible that the patients had no esophageal injury. Other successful cases, on cortisone therapy, have been reported after the ingestion of chemical agents that are known to produce strictures only rarely.

It has been shown experimentally that cortisone inhibits the formation of granulation tissue and thus the amount of scarring reaction. Theoretically and experimentally cortisone and antibiotic therapy should be beneficial in corrosive burns of the esophagus, and probably they are beneficial. However, I feel that not enough is known about the action of these agents in burns of the human esophagus to state that they will unequivocally prevent stricture formation.

I would like to outline a course of action that seems practical and reasonable at the present state of knowledge, realizing that it will need revision as our knowledge increases.

1. The patient should be hospitalized for the first two weeks of care.
2. Sedation and narcotics should be given to control pain the first few days.
3. Antibiotic prophylaxis should include penicillin, 600,000 units twice daily, and streptomycin, 0.5 gm. twice daily, for adults. Other antibiotics should be used for penicillin-sensitive patients.
4. Esophagoscopy should be conducted within 48 hours after the initial injury to determine the presence and the site of injury.
5. Cortisone should be given by mouth, 300 mgm. the first day, 200 mgm. the second day, and 150 mgm. daily thereafter for 28 days with careful observation of the patient for any untoward reactions to the cortisone therapy. For children the average dose should be 25 mgm. of cortisone each eight hours.
6. Administration of 1.5 to 2.0 gm. of potassium

chloride daily will help to offset any potassium deficiency that might result from cortisone therapy.

7. Prophylactic esophageal bougienage should begin on the fifth day from injury and be conducted twice weekly for the first month; once every other week during the third month; then once per month for the next six months. This regime carries the patient through the critical eight months during which 99 per cent of those who are going to develop stricture have done so.

8. A liquid diet should be administered during the first week; then it should be gradually changed to a soft and to a bland diet, as tolerated by the patient.

9. Laboratory tests should be performed as indicated by the clinical course.

10. A gradual reduction of cortisone dosage should be planned over several days with terminal administration of ACTH gel.

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Perhaps the most valuable result of all education is to make you do the thing you have to do, when it ought to be done, whether you like it or not; it is the first lesson that ought to be learned; and however early a man's training begins, it is probably the last lesson that he learns thoroughly.

—Thomas H. Huxley



## PRESIDENT'S PAGE

DEAR DOCTOR:

Of particular note at the University of Kansas Medical Center is the high quality, practical usefulness, *and* the quantity and broad diversity of continuing postgraduate instruction. These courses add up to a surprising 1/16 of the total of all postgraduate courses offered in the 83 medical schools and many hospitals in the 48 states.

Over 50 per cent of Kansas doctors attended the postgraduate sessions last year, over 80 per cent at some time during the past five years. Most now pursue their continuation studies here, 79 per cent actually. Sixty-eight per cent are doing graduate work both here and elsewhere.

An amazing array of distinguished men in every field is imported for the graduate faculties, and our own faculty members contribute generously of their fine talents. The entire program is self-supporting, financed by the fees paid, excepting only the time contributed by members of the Medical Center staff. Many medical schools elsewhere are severely criticized for subsidization of graduate instruction costs, particularly by other groups, such as dentistry and the legal profession.

For those who feel they cannot leave their practices to attend courses at the Center, the Circuit Courses presented periodically at various cities over the state offer an additional opportunity to participate in the program. These meetings are uniformly well attended.

The school administration, in achieving these accomplishments, generously allots much credit to our Committees on Medical Schools and on Postgraduate Study for encouragement and providing stimulus to presentations, selection of suitable practical courses, study and analysis of answers to questionnaires, as well as in development of mutual enthusiasms. The result is of great benefit to medical practice and has contributed largely to the quality of the medical care we dispense.

*Fraternally yours,*

A handwritten signature in cursive script, reading "David P. Nelson". The signature is fluid and elegant, with a large initial "D" and a long, sweeping underline.

*President*

## EDITORIAL COMMENT

### School of Medicine Issue

Although the phrases which introduce the annual University of Kansas School of Medicine issue of the JOURNAL are becoming stereotyped, the pride that is felt by members of the Editorial Board is in no way dimmed. On the contrary, the Board's pleasure in this annual issue is increased because the occasion is repeated for the 12th time.

Appreciation is expressed to Dr. W. Clarke Wescoe, dean of the school, who contributed the lead article, and to Dr. Vernon E. Wilson, associate dean, who serves also as an associate editor of the JOURNAL. Credit for assembling all scientific material in this issue is due Dr. Wilson.

The Kansas Medical Society looks forward to publishing additional material from the Medical Center throughout the year and takes pleasure in the fine relationship which exists between the two organizations.

### Evolution or Revolution

Revolutionary changes although sudden in onset are not sudden in inception. In each instance the violent nature of the change can be traced to the lack of sensitivity on the part of those who "have" to the needs and wants of those who "have not." In other words, evolutionary changes did not keep pace with the changing need, and the resultant increased pressures brought about a revolutionary move. A brief review of history will serve well to prove this point.

The responsibility for the formation of principles guiding the practice of medicine has traditionally been in the hands of dedicated and farsighted men. The initial effort to establish the American Medical Association was stimulated by the need to improve medical education and, thus, the care of the general public. The Flexner Report was but another self-disciplinary move on the part of practitioners and educators to keep the level of medical performance at a satisfactory level. More recently grievance committees, Blue Cross-Blue Shield, and other such endeavors have served as proof of the continued interest of organized medicine in the welfare of the public. With the rapid accumulation of new knowledge, the increasing demands made upon the physician for his time and intellectual efforts have tended to force him to focus more and more upon the initial acquisition of information to the neglect of the development of adequate evaluation of the results of his practice. In many instances time spent in training programs, certifications, and years of experience in medical practice have been confused with competence in handling medical problems. No

man can possibly learn all about even a limited area of medicine regardless of the time and effort he may spend and it is therefore the knowledge of his own limitations, on the part of the physician, which becomes all important. Thus, experience and competence may well be totally dissociated depending upon the timing, quality, and type of experience. How then is competence to be determined?

The medical school can assume the responsibility of establishing standards and requirements for the granting of the M.D. degree; it can also assist in designing suitable graduate and postgraduate learning experiences. However, it cannot and should not become involved in assessing the excellence of medical practice. This is the rightful role of organized medicine and a privilege and responsibility which should be jealously guarded. Evolutionary changes have been made in this direction through hospital tissue committees, infection committees, grievance committees and other such organizations. None of these have been effectively used thus far to truly assess the practice of medicine in the community as a whole. Only the county, state, and national medical society can constructively and effectively enter into such a program. More importantly this cannot be a police action but must result from the intense desire on the part of the majority of the members to participate in a vigorous and continuing self-appraisal.

How is this to be accomplished? Certainly written examinations are not the answer. Very probably the techniques of using review committees at the county and state medical society level is the most available and efficient method. In the final analysis it is the quality of medical care given which should be used as a standard. A man's knowledge of his own limitations and of the available resources which can be used, both personnel and facilities, is the chief protection available to the patient. Whether or not the physician has done what the prudent practicing physician of his community would have done is the criterion used by the court of law.

If we in organized medicine do not rise to meet this growing need, other groups and organizations will do it for us—business concerns and governmental agencies have already taken some steps to establish arbitrary criteria for the hiring of physicians. These are based upon unsound and, in some instances, dangerous principles. The alarming growth of malpractice suits is but another warning sign of increasing pressure. Ideally our enlightened approach to evolutionary changes will continue to pace the wants and needs for health care. An enlightened public has given evidence that it will settle for no less. Hopefully, revolutionary methods with their inevitably destructive and wasteful mechanisms can be avoided. This can be guaranteed if physicians as a group will apply them-

selves to the diagnosis and treatment of this problem with the same vigor, thoroughness, and intelligent application they have used in treating their patients.—*Vernon E. Wilson, M.D., Associate Dean, University of Kansas School of Medicine.*

### Reasons for Pride in Our School

It is no exaggeration to state that Kansas has one of the most outstanding medical schools of the nation. It is outstanding and unique in the meticulous, scientific selection of student applicants, in organization of highly developed courses presented in curricula of the most modern and "progressive" character, a faculty of distinguished teachers, both in the basic sciences and in clinical subjects, unique in its close liaison with active practitioners and in active co-operation with organized medicine.

Physicians in practice are most interested, naturally, in the postgraduate curricula. As recounted on the President's Page, this department is not only remarkable in its broad development, but, also, in its active and enthusiastic utilization by the profession.

The medical school now matriculates 105 students each year. Approximately 93 per cent are Kansans; 5 to 6 per cent are from Kansas City, Missouri (really more Kansan than Missourian), only 1 to 3 per cent from other areas. Indicative of the quality of the matriculants selected is the small number dropped from the rolls. For example, last year only three freshmen failed to produce acceptable work; two withdrew because of illness; two discovered they had embarked upon a profession for which they were not properly fitted. The number dropped in the second, third, and fourth years is practically nil.

Curricula are effectively planned, not only to provide sound, fundamental, scientific training, but are distinctively "progressive" in character. This is shown in the trend toward opportunities for the exceptional student to exploit his special talents or particularly intense interests.

Each senior medical student spends 4½ weeks at a state hospital for mental health, where he discovers the tremendous importance of this field, the great need for better understanding of mental health needs, and a comprehension of the value of properly organized, amply supported hospitals and programs for treatment of mental illness.

The preceptor program is, of course, the unique Kansas development with each senior student spending 4½ weeks in the office of a small town general practitioner. Dr. Mahlon Delp, brilliant professor of medicine, terms it "the best possible way of teaching a medical way of life." It is an excellent teaching program, presenting the practical aspects of medical practice, relationships with the private patient, with the

family of the patient, and with the community. Students are pleased and interested in this period of training. No definite figures are available as to the number who are motivated to enter rural or small town practice, but their number is considerable. Before inception of the preceptor program only 33 per cent of graduates remained in Kansas. This rose fairly rapidly to 50 per cent, and has now reached 60 per cent, almost twice as many as formerly. During the past year, as instances, three graduates have established practices in Belleville and others in Haven, Quinter, Russell, and in other Kansas towns.

The preceptor program is arousing more and more national attention. It was a featured topic for discussion at national medical school meetings during the past few months.

It is entirely accepted that enormous credit is due our dynamic, resourceful, personable dean, Dr. W. Clarke Wescoe, and genial, capable, co-operative associate dean, Dr. Vernon E. Wilson. Both are well known to the profession by their friendly democratic participation in society activities, their open-mindedness toward our advisory groups, and their obvious desire to further the best interests of Kansas medicine. Dr. Wescoe was enthusiastically received by the Council on Medical Service of the A.M.A., where he already has obtained rapt attention for presentation of specific ideas and has become chairman of an important sub-committee. Dr. Wilson holds the office of assistant secretary of the Association of American Colleges, an important body where he plays an effective role in the reviewing and rendering of reports on the accreditation of medical schools.

Finally, the year by year growth in the physical plant is truly amazing, the fine modern buildings, expanding bed capacity, clinical laboratories, teaching areas, research facilities, the auditorium, and the attractive, comfortably usable postgraduate facilities. It, indeed, has become a metropolitan medical center to be proudly regarded with the finest anywhere.—*Barrett A. Nelson, M.D., President, Kansas Medical Society.*

### Income Tax Guide Available

"The Federal Income Tax Guide for Physicians" is the title of a booklet published recently by the Law Department of the American Medical Association. It contains answers to some of the most perplexing tax problems, compiled from court decisions as well as rulings, regulations, and publications of the Internal Revenue Service. It has been designed to give physicians a better understanding of their rights and obligations under federal income tax laws.

The Law Department staff has only one word of advice: Do not consider this booklet as a *substitute* for the services of a personal tax advisor!



# Maternal Death Study—Case History

*Editor's Note. This is the third of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas. The committee also records its decisions as to the most probable cause of death, the preventability or unpreventability of the death, and the major contributing factors.*

The patient was a 32-year-old gravida 8, para 6, abortion 1 who reported for prenatal care in the seventh month of her last pregnancy. The record reveals no gross abnormalities, but the diet was considered below standard. The serological test was the only laboratory procedure performed. She had three subsequent visits prior to delivery.

About 3:30 p.m. four weeks before term, she slipped and fell on an icy walk. Pain in the back and side developed shortly and became increasingly severe, requiring hospitalization at 5:55 p.m. There was no evidence of labor at that time, temperature, pulse, respirations, and blood pressure being normal and x-rays of the back and lumbosacral spine revealing no abnormalities. No fetal heart tones were audible, however. She was given Demerol, 50 mgm., and blood was typed. The following events ensued:

- 7:00 p.m. True labor began.
- 7:25 p.m. Contractions hard, small amounts of bright red blood gushing from the vagina.
- 8:00 p.m. Patient taken to delivery room.
- 9:07 p.m. Cervix dilated 3-4 cm. Pitocin, 3 minims given.
- 9:27 p.m. Same. Pitocin, 5 minims given.
- 10:00 p.m. Note made that baby was dead. Patient to be returned to her room for blood transfusion.
- 10:45 p.m. Transfusion started (500 cc.).
- 12:45 a.m. Nitrous oxide anesthesia started in delivery room. Demerol, 50 mgm., given.
- 1:05 a.m. Delivery of stillborn, four-pound, two-ounce fetus.
- 1:15 a.m. Delivery of placenta with copious blood loss. Pitocin, one ampoule, and Ergotrate, one ampoule, given. Patient pale and cold. No pulse or blood pressure recorded.
- 1:20 a.m. Patient returned to room. Blood, 500 cc., started.
- 2:00 a.m. Ergotrate, one ampoule given. Thorazine, 25 mgm., given.
- 2:40 a.m. Blood pressure 50/10. Koagamin, 3 cc., given intravenously.
- 2:45 a.m. Vasoxyl, 1 cc., given intramuscularly.
- 3:00 a.m. Blood, 500 cc., started.
- 3:20 a.m. Vasoxyl, 1 cc., and caffeine sodium benzoate, 2 cc., given.
- 4:10 a.m. Uterus noted to be firm. Strychnine, gr. 1/60, and sodium phenobarbital, gr. 3, given.
- 5:40 a.m. Respiration slow, pulse weak and rapid. Oxygen started; Coramine, one ampoule, given.
- 6:07 a.m. Patient pronounced dead.

The notations constitute all information recorded at the time. The physician remained in constant attendance but did not call for consultation.

**COMMITTEE ACTION:** The committee noted the failure to make a diagnosis and failure to take positive action. There is no record of blood pressure having been taken except on admission and at 2:40 a.m. There was no indication that the uterus was adequately checked to rule out a laceration or rupture. It was felt that Pitocin was used unwisely and excessively in view of the parity of the patient. In view of the good resources available, it was thought particularly unfortunate that consultation was not obtained.

The inadequate record prevented the committee from determining the principal factor in this death, but it was thought to have been ablation of the placenta or rupture of the uterus. The death was considered preventable with the error in judgment of the attending physician being the major contributing factor.

**CLASSIFICATION:** OBSTETRICAL DEATH; PREVENTABLE; ERROR OF PHYSICIAN; NO AUTOPSY.

# Clinicopathological Conference

## *Abdominal Pain, Shock, Thrombocytopenia, and Rapid Enlargement of the Liver*

### Case Presentation

The patient under consideration today, a 45-year-old white woman, first entered KUMC at 1:00 a.m. on March 23, 1956, and died at 11:10 p.m. on March 24, 1956.

She had been perfectly well until January, 1956, when she had a sudden onset of squeezing substernal pain which radiated to the right shoulder and down the right arm. This pain was associated with dyspnea, and it lasted 36 hours. She was hospitalized for three days at that time. Afterwards, she was apparently well until two weeks before admission, when pain again developed in her right shoulder. This pain again lasted for 36 hours, and she was hospitalized for one week at that time.

On March 21, 1956, she had a periumbilical pain which radiated to the back and was associated with nausea and diarrhea. Her stools were yellow, had a foul odor, and floated on the water. On March 22, 1956, the abdominal pain was in the right upper quadrant, and she was nauseated and vomited throughout the day, but had no diarrhea.

A benign tumor was removed from the left breast in 1953; she had a pan-hysterectomy for fibroids in 1954. She was gravida VII, para VII.

The family history was non-contributory.

The patient was a well developed, well nourished white woman, slightly cyanotic and acutely ill. The systolic blood pressure was 60, and the diastolic pressure could not be estimated. The pulse was faint, and the rate was 120. The respiratory rate was 25. Her lips were cyanotic; the conjunctivae and oral mucosa were pale. The tongue was dry; the eyes, ears, and nose were normal. The lungs were clear. The heart tones were faint, and no murmurs were heard. The spleen and liver were not felt on admission, but later the liver was palpated about 10 cm. below the right costal margin. She had generalized rebound tenderness in the right lower quadrant. There was no rigidity, and the extremities and neurological examination were normal.

The specific gravity of the urine was 1.024 with

acid reaction, 3 plus albumin, and negative sugar. The specimen was loaded with amorphous material and numerous epithelial cells, and there were 15 to 20 white blood cells per low power field. The red count was 5,490,000 with 15.2 gm. hemoglobin. The white count was 19,000 with 15 polymorphonuclears, 12 filamented, 76 lymphocytes, 1 basophil, and 8 monocytes. There were many immature lymphocytes and 15 nucleated red blood cells per 100 white blood cells. The platelet count was 16,000. Serum calcium was 3.8 mEq/L; phosphorous, 3.5 mEq; chlorides, 110 mEq. The nonprotein nitrogen was 47 mg. per cent; sugar, 290 mg. per cent; amylase, 150 to 200 units per 100 ml.

The foot of her bed was elevated, she was given oxygen and kept warm. A Levine tube was attached to suction. She was given intravenous and intramuscular hydrocortisone sodium succinate (totaling 600 mg.) and intravenous glucose and saline. In spite of these measures she remained in progressively deeper shock throughout her hospitalization. She died quietly on March 24, 1956.

Dr. Mahlon Delp (moderator): Are there any questions for Dr. Schmaus?

Robert E. Wildin (fourth year medical student):\* Was there any diabetes in the family?

Dr. John Schmaus (resident in medicine): No, there was not.

Keith Woolpert (fourth year medical student): Were any other studies made during her previous hospitalizations?

Dr. Schmaus: A gallbladder study was done, and it was normal.

Mr. Wildin: Was there any history of alcohol ingestion?

Dr. Schmaus: No.

Mr. Wildin: Whooping cough?

Dr. Schmaus: No.

Mr. Woolpert: Was there any abdominal distention, hematemesis, or hemoptysis?

Dr. Schmaus: The abdomen was only slightly distended. There was no hematemesis or hemoptysis.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of medical students.

\* Though a medical student in March, 1957, when this conference occurred, he, like the others referred to as students, received the M.D. degree in June, 1957.

Robert L. Wilson (fourth year medical student): Were any bowel sounds elicited?

Dr. Max Allen (internist): There was no abnormality.

Paul J. Uhlig (fourth year medical student): Was there any evidence of subcutaneous bleeding, ecchymoses, or petechiae?

Dr. Schmaus: Small petechiae developed while the tourniquet was in place for the "cutdown."

Roger D. Warren (fourth year medical student): What was the temperature course while she was in the hospital?

Dr. Schmaus: On the day of admission the rectal temperature was 99.6 degrees at 7:00 a.m., but it was up to 101 degrees at 3:00 p.m. and at 7:00 p.m. On March 24 the temperature was 99.2 degrees, and just before death it was 98.4 degrees.

Mr. Warren: Did she receive intravenous glucose before the blood sugar was drawn?

Dr. Schmaus: Yes.

Mr. Wilson: Were there any lupus erythematosus cells?

Dr. Schmaus: We did not look for them.

Mr. Warren: Will you describe the Levine tube drainage?

Dr. Schmaus: It became slightly bloody.

Mr. Uhlig: Was there a history of hypertension?

Dr. Schmaus: No.

Mr. Wilson: What was the blood count on admission?

Dr. Schmaus: On admission the hemoglobin was 15 gm. and the white count was 1,800 with 8 polymorphonuclears, 4 filamented, 28 lymphocytes, 4 monocytes, and 60 young blast forms with 10 nucleated red cells per 100 white cells.

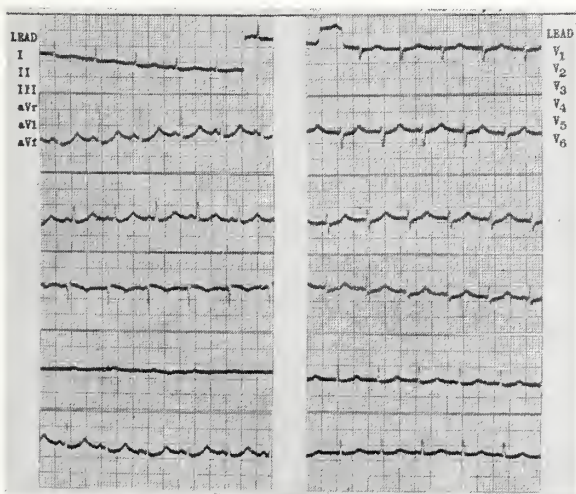


Figure 1. First electrocardiogram taken one day before admission.

Mr. Warren: Will you describe the patient's appearance on the day after admission?

Dr. Schmaus: Her appearance was essentially the same throughout her hospitalization.

Mr. Wildin: Was there any history of melena or steatorrhea before March 21?

Dr. Schmaus: No, there was not.

Mr. Woolpert: Were vasopressor drugs used during her hospital course?

Dr. Schmaus: She received levarterenol (Levophed) in an attempt to maintain her pressure, but it did not help.

Dr. Joaquin Lopez (resident in pathology): Were there any symptoms of bleeding, bruises, or hematemesis?

Dr. Schmaus: There were purpuric areas over her arms during her hospitalization here.

Dr. Delp: May we see the electrocardiograms, please?

Mr. Woolpert: The first electrocardiogram was taken on March 22, one day before her admission to this hospital (Figure 1). There is a normal sinus rhythm with a rate of approximately 110. The P-R intervals are within normal limits. There is a suggestion of peaking of the T waves. The QRS and T vectors appear to be within normal limits.

The next tracing, taken on March 23, the first day of admission, shows a slight increase in the rate. There is still a normal sinus rhythm.

Another tracing taken on March 24, 1956, shows a rate of approximately 110. There is peaking of the T waves and a suggestion of depression of the S-T segments in V<sub>3</sub>, V<sub>4</sub> and V<sub>5</sub>. This may suggest myocardial ischemia. This tracing may be compatible with hyperpotassemia and hypocalcemia.

Dr. Delp: Dr. Lin, do you have any comments?

Dr. T. K. Lin (cardiologist): The first tracing shows a fairly normal QT interval; however, if compared with a later tracing the QT interval is a little shorter. I do not believe one can diagnose hyperpotassemia.

Dr. Delp: Do you think the T waves are peaked?

Dr. Lin: They may be slightly peaked.

Dr. Delp: May we see the portable film, please?

Mr. Wilson: The portable film was taken on the day of admission with the patient in the lateral position (Figure 2). One can see the Levine tube and a bubble of air which indicates that she was lying on the left side. There is an area along the inside of the peritoneum which may be air. I do not believe that this represents abnormal intestinal obstruction.

Dr. Delp: Dr. Tice, do you have any comment?

Dr. Galen Tice (radiologist): This film was taken to determine whether there was any free air in the peritoneal cavity. She could not stand up, so the film



was taken with the patient lying on her right side. No air was seen in the peritoneal cavity.

Dr. Delp: May we have the discussion, Mr. Wildin?

### Differential Discussion

Mr. Wildin: This case presents many diverse clinical and laboratory findings. I would like to base my discussion only on those diseases which we seriously considered in attempting to explain our patient's course.

In January, 1956, she entered the hospital with a history that was suggestive of myocardial infarction. For three days she had had periumbilical pain radiating to the back, nausea and vomiting, diarrhea and steatorrhea. Two months later she entered this hospital in a state of dehydration and shock. Laboratory findings included albuminuria, hypocalcemia, hyperglycemia and slight azotemia, and suggested acute pancreatitis. However, there were nucleated red blood cells in the peripheral blood, an absolute lymphocytosis with immature and blast forms, slight myelocytosis, neutropenia, and a marked thrombocytopenia. Acute pancreatitis alone cannot explain these findings.

There are three types of diseases that may offer an explanation: chronic lymphatic leukemia, acute lymphatic leukemia, and malignant lymphoma. Chronic lymphatic leukemia can be ruled out because our patient did not have a protracted course, and there was no peripheral lymphadenopathy, severe anemia, or splenomegaly.

Factors against the diagnosis of acute leukemia are the absence of palpable lymph nodes, splenomegaly, anemia, and tenderness over the sternum. These are

variable findings in this disease, and for that reason one cannot dismiss it completely.

Malignant lymphomas without peripheral adenopathy can occur in the mediastinum, in the abdomen, or both. A mediastinal lymphoma either by rapid enlargement or by infiltration of the heart or pericardium with pericarditis and coronary occlusion could have explained her condition in January. This is unlikely, however, because the electrocardiogram shows no evidence of an old myocardial infarction.

There are no chest x-rays to indicate whether mediastinal nodes were present. Lymphomas in the abdomen may be inside or outside the bowel wall. Lymphomas found in the bowel are usually in the cecum or the small intestine. Small bowel lymphomas frequently cause a sprue-like syndrome which lasts for several weeks and results in death from intussusception, intestinal obstruction, or perforation and peritonitis. This may be a possible explanation of our patient's illness, but the course of this disease is usually more prolonged.

I do not believe that steatorrhea for three days can explain the hypocalcemia in our patient, and I cannot explain it without postulating that she had acute pancreatitis. As a consequence, I am faced with the problem of relating acute pancreatitis and lymphoma. Perhaps she had both diseases unrelated to each other, but we might postulate invasion of the pancreas and its ducts by a lymphoma causing obstruction and disruption of the pancreatic ductal system and leading to acute pancreatitis. Occlusion of the blood supply or venous drainage of the pancreas by infiltration or by thrombosis might also occur.

Right heart failure rarely causes such rapid and severe enlargement of the liver, as this patient had. A better explanation is that she terminally had thrombosis of the hepatic veins, the so-called Budd-Chiari syndrome which occurs with lymphoma, leukemia and inflammatory disease in the upper abdomen, such as pancreatitis. Shock and dehydration also predispose to thrombosis of the hepatic vein. Our patient could have had acute leukemia with decreased resistance to infection, infectious pancreatitis, shock, and finally thrombosis of the hepatic veins.

In summary, I believe that our patient either had acute leukemia or an abdominal lymphoma with terminal leukemia and terminal thrombosis of the hepatic veins. I believe that she died of irreversible shock which was secondary to pancreatitis and which led to anoxia of all the viscera, particularly the liver and adrenals. There may also have been infiltration of the adrenals with leukemic or lymphoma cells, infarction of the adrenals from shock or thrombosis, bleeding into the peritoneal cavity as a result of the thrombocytopenia, hepatic vein thrombosis, and car-

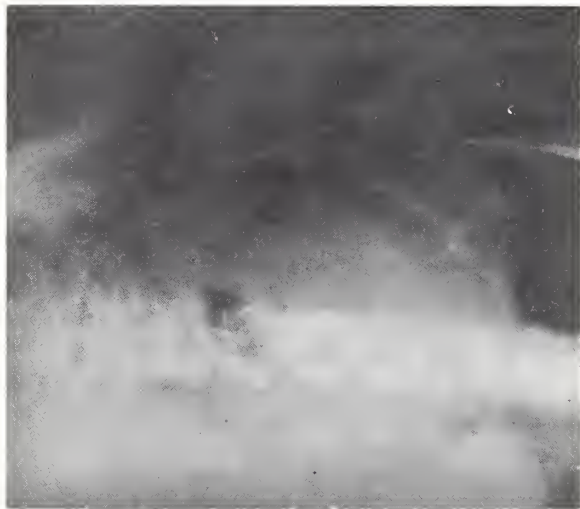


Figure 2. Portable film taken on day of admission showing the patient in the lateral position.

diac dilatation due to a combination of hypocalcemia and hyperpotassemia.

### Clinical Discussion

Dr. Delp: Thank you. Mr. Warren, how do you explain the persistence of the shock? We know it existed throughout her final hospitalization.

Mr. Warren: The initial clinical examination gave evidence of acute pancreatitis or other acute abdominal catastrophe.

Dr. Delp: Mr. Woolpert, do you believe that this patient could have had a Waterhouse-Friderichsen syndrome?

Mr. Woolpert: Yes.

Dr. Delp: Can you choose just one cause for the shock?

Mr. Wildin: Acute pancreatitis.

Dr. Delp: Mr. Warren, how do you explain the enlargement of the liver which occurred during the patient's hospitalization here? Several competent examiners found that the liver was not enlarged when she was admitted, and an equally competent consultant found the liver 10 to 15 cm. below the right costal margin.

Mr. Warren: There is rapid enlargement of the liver in the Budd-Chiari syndrome. It could also explain the shoulder pain and generalized abdominal tenderness.

Dr. Delp: Are you referring to her chest pain of several weeks ago?

Mr. Warren: No, that could not be the result of her terminal disorder.

Dr. Delp: Mr. Wilson?

Mr. Wilson: I believe her liver enlarged rapidly because of thrombosis of the hepatic veins.

Dr. Delp: Mr. Woolpert?

Mr. Woolpert: Experimentally, fat infiltration has been reported during acute pancreatitis, but this has not been proved in human subjects. My best explanation is the Budd-Chiari syndrome.

Dr. Delp: How many such cases have been reported?

Mr. Wilson: I think that about 57 have been recorded since 1884.

Dr. Delp: Is the platelet count satisfactory to you, Mr. Warren?

Mr. Warren: No, it is not.

Dr. Delp: What was the report, Dr. Schmaus?

Dr. Schmaus: The platelet count was 16,000.

Dr. Delp: What do you think about that, Mr. Warren?

Mr. Warren: Thrombocytopenia with nucleated red cells and immature forms of all series of myeloid cells would suggest a generalized invasion of the bone marrow. That disturbs me somewhat, however,

because she did not have peripheral lymphadenopathy.

Dr. Delp: Is this an extremely low platelet count?

Mr. Warren: It certainly is.

Dr. Delp: To what do you attribute this low platelet count?

Mr. Warren: I attribute it to megakaryocyte destruction.

Dr. Delp: Mr. Uhlig?

Mr. Uhlig: I attribute it to leukemia.

Dr. Delp: Mr. Wilson?

Mr. Wilson: There is no history of any toxic products which would cause a drastic reduction so quickly. She did not have anemia, but she did have thrombocytopenia. I believe that leukemia is the explanation.

Dr. Delp: It did happen awfully quickly, did it not? Do you feel a little insecure about it, Mr. Woolpert?

Mr. Woolpert: Cases of thrombosis and of the Budd-Chiari syndrome have been reported in which there was a decrease in platelets, but I do not believe the thrombocytopenia has ever been extreme.

Dr. Delp: Dr. Allen, may we have your comments?

Dr. Max Allen (internist): The findings were not too atypical. There were several factors that did not relate to the diagnosis of acute pancreatitis. The steatorrhea, the low serum calcium, and the shock, which is quite prominent in acute hemorrhagic pancreatitis, all relate to the disease. There was, on the other hand, the lack of ileus which is common in acute pancreatitis. The single most significant feature was the rapidly enlarging liver. My only explanation was that the patient was in a shock-like state with reduced cardiac output. We were replacing fluids rather rapidly. We attributed the shock to adrenal failure, due either to hemorrhage of the adrenals or to stress exhaustion of the adrenals. We concluded that this was an acutely developing situation, an acute leukemia, which had not had time to develop enlarged peripheral lymph glands and splenomegaly. My final impression was acute leukemia with hemorrhagic destruction of the adrenal glands and irreversible shock.

Dr. Delp: Dr. Wilson, what was your opinion of the platelet count?

Dr. Sloan Wilson (hematologist): In fulminating toxic states the blood picture may suggest acute leukemia. It is difficult to determine whether this patient had a toxic state or acute leukemia. I made a diagnosis of acute leukemia after having seen the smears containing a fulminating type of immature cell.

Dr. Delp: Why did the platelets disappear? Were they lysed, or are you postulating that they were not made?



Dr. Wilson: There are many ways in which platelets may disappear from the peripheral blood stream. The most common way, of course, is that seen in idiopathic thrombocytopenia in which there is a sudden lysis of platelets.

Dr. Delp: Dr. Schmaus, what was your diagnosis?

Dr. Schmaus: At first my diagnosis was acute pancreatitis, but I later changed it to acute leukemia.

Dr. Delp: Dr. Mantz, will you please present the pathology?

### Pathological Report

Dr. Frank A. Mantz, Jr. (pathologist): It is of extreme gratification to me to confirm many of the statements the students have made here today. However, I must state at the outset that the pancreas was examined in great detail, and no evidence of necrosis or inflammation was found. The body for examination was that of a well developed, well nourished white female who appeared to be the stated age of 45 years. In keeping with the thrombocytopenia which was described, there were multiple petechiae throughout the skin, pleura, pericardium, and the urinary tract. No lymphadenopathy was discovered.

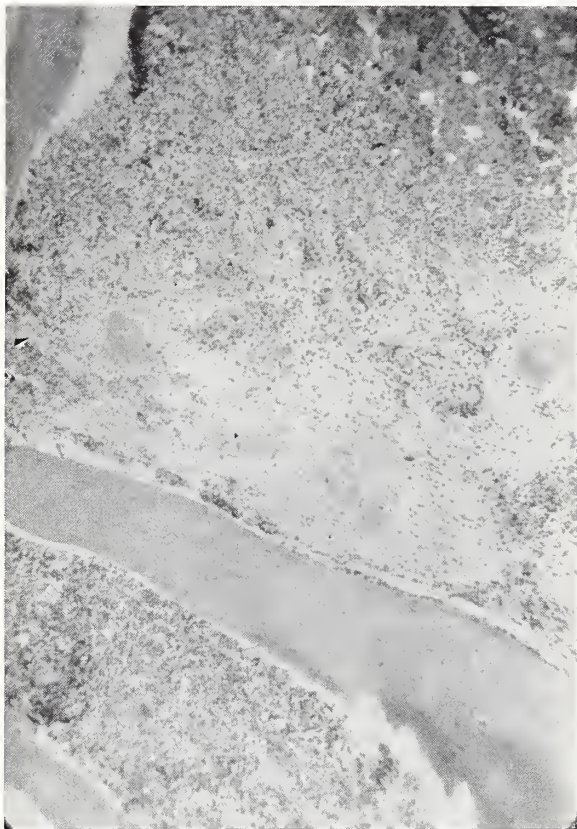


Figure 3. Bone marrow. Abnormal myeloid proliferation fibrosis and osteogenesis occurring in the same field.



Figure 4. Hepatosplenomegaly with focal necrosis in the liver and myeloid metaplasia of spleen.

Examination of many organs including the brain disclosed within the capillaries large numbers of highly immature cells both of the erythroid and leukocytic variety. The exact identification of the leukocytes is not possible in the tissues. The bone marrow was exceedingly firm and red to mottled gray in color. Histologic study disclosed that the marrow spaces were rather heavily infiltrated with small lymphocytoid cells. This showed a distinctly invasive behaviour by infiltrating beneath the periosteum in some areas and elevating it. The nature of the reaction in the bone marrow is exceedingly interesting. We noted that there was rather extensive distortion of architecture and that large numbers of megakaryocytes, cells of the erythroid series and reticuloendothelial elements were scattered throughout. The predominant cells, however, were distinctly lymphocytoid but, when studied with Giemsa stain, were found to contain granules and were apparently myeloblasts or promyelocytes.

We may conclude, therefore, that, in addition to diffuse proliferation of bone marrow, there was marked immaturity of the myeloid series. A reticulum stain of the bone marrow revealed an abundant depo-





Figure 5. Thrombus in hepatic vein with central necrosis of adjacent lobule.

sition of this material in a highly irregular and non-architectural pattern. This reflected the large number of reticular elements throughout the bone marrow, as well as the character of the neoplastic proliferation with which we deal. The bone marrow also showed areas of scarring containing tiny foci of new bone formation (Figure 3).

A similar process was encountered within the liver where there were small clusters of proliferating reticuloendothelial cells, scattered megakaryocytes, and numerous tiny islands of myeloid activity as well as erythrocyte production. Many of these were found within the portal areas.

The spleen also exhibited this phenomenon with relatively large numbers of megakaryocytes, many blast cells, and occasional islands of erythroid activity.

All of you recognize this, I am sure, as a diffuse myeloproliferative disorder, and it is not my intention at this time to belabor the argument whether or not the myeloproliferative states represent a variation of leukemia or a different entity. I wish, however, to point out that Damashek<sup>1</sup> has emphasized that the bone marrow may, under certain conditions, react en masse not only with the hematopoietic elements alone,

but also with the stromal elements contributing to the proliferative or neoplastic process. Various results, apparently, may occur. One of these is typical chronic myelogenous leukemia. Similar alterations may also be seen in the recovery of the bone marrow from intoxications such as irradiation and in the metamorphosis of polycythemia vera to a leukemic state. It is most unusual, however, to see acute myelogenous leukemia complicating the myeloproliferative disorders. These are popularly known as agnogenic myeloid metaplasia, but in our laboratory they are classified as panmyelosis. In any event, there appears to be multiple differentiation of the mesenchymal cells into hematopoietic elements, fibroblasts, and osteoblasts, so that marked variation in the picture may occur.

The liver was the site of a rather amazing pathological alteration (Figure 4). It was markedly enlarged and weighed 2,300 gm. It was exceedingly soft and mushy and extended 8 to 10 cm. below the right costal margin. The cut surface was striking in that it showed numerous small focal areas of hemorrhage in the central portions of the lobules. Associated with this were foci of necrosis tending to become confluent to produce irregular masses of yellow discoloration. The

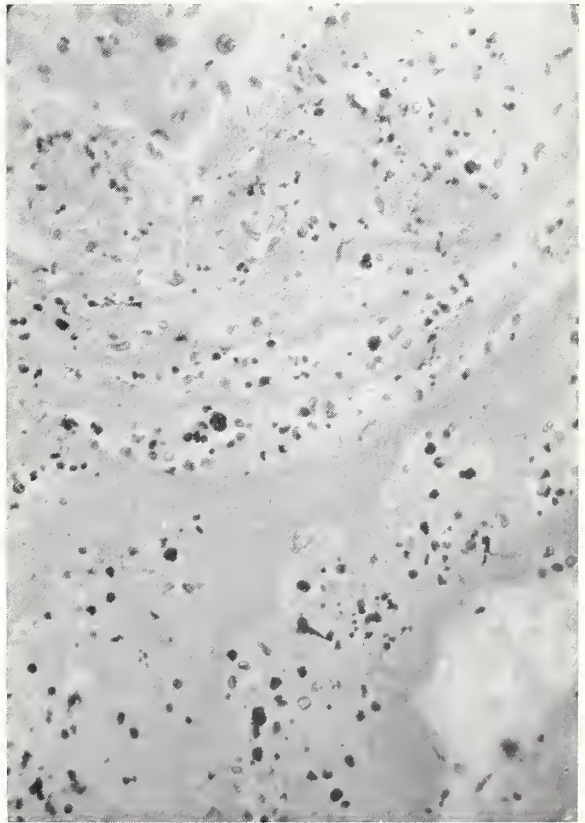


Figure 6. Thrombus in hepatic vein containing myeloid cells and megakaryocytes.

hepatic veins on the cut surface were markedly dilated and many of them grossly contained distinct thrombi.

Sections of the liver confirmed the presence of thrombi throughout the hepatic veins (Figure 5). The majority of these were fairly recent, but other thrombi were distinctly old, having undergone organization. I believe that the patient's initial complaints were related to these more remote lesions.

The mechanism of venous thrombosis appears related to the myeloproliferative disorder since many of the involved vessels contained myeloid cells within their walls. Many of the thrombi likewise contained megakaryocytes in addition to the leukemic type of cells (Figure 6). It seems probable that these elements may have precipitated thrombosis. Furthermore, the granularity of the thrombi suggested the possibility that platelets themselves may have agglutinated into solid masses explaining in part the reduced platelet count which was noted clinically.

As might be expected, there was extensive focal necrosis within the lobules in the manner of incomplete infarcts. The sinusoids were markedly dilated and many focal hemorrhages were seen. Disse's spaces were rather uniformly dilated, suggesting accumulations of lymph, a factor which may possibly explain the ascites which is so frequently seen with hepatic vein thrombosis. Six hundred ml. of ascitic fluid had collected in the abdomen.

I am sure that you are now aware that this is an example of the Budd-Chiari syndrome which was first described in 1846 by Budd and later, in 1894, further described by Chiari. It is a rare clinical entity although the pathologist recognizes it a great deal more frequently than does the clinician since hepatic vein thrombosis occurs as an event in a number of illnesses. On reviewing the literature one finds that the hematologic disorders are not uncommon. Among them polycythemia appeared to rate first, sickle cell anemia also has been described, and there have been a few cases in which the syndrome has occurred with leukemia.

The spleen was the site of extensive congestion. It weighed 600 gm., and histologically it presented the appearance of hemorrhagic infarction with almost all of the splenic parenchyma gone. All that remained were the myeloproliferative centers with which the spleen was so extensively filled.

The gastrointestinal tract showed evidence of portal hypertension in the form of massive hyperemia and numerous petechial hemorrhages. There was evidence that early collaterals had been established in the esophagus where there was striking dilation of the esophageal veins associated with hemorrhage into the surrounding tissue. This section was obtained at the

site of a small erosion and presumably may have contributed to the bloody return from the Levine tube.

This patient was in considerable shock, and it is significant that she put out only 130 ml. of urine during hospital observation. Examination of the kidneys showed remarkable changes. Their weight together was 300 gm.; they were exceedingly pale, and at the outer part of the cortex the pallor was more evident than that seen in the inner aspect. Within the outer two-thirds of the renal cortex of both was a symmetrical zone of marked necrosis and ischemia as opposed to the inner one-third of the cortex where the parenchyma was not only well preserved but relatively hyperemic. This is bilateral symmetrical cortical necrosis of the kidneys in an early phase. It has been reported in pregnancy and in acute hepatic necrosis. It has been postulated that possibly some nephrotoxin may be elaborated in the liver to initiate this lesion. It has been pointed out that the bilateral necrosis of the kidney has a tendency to appear in shock due to any cause, and it has been reproduced in experimental animals by producing shock. We feel that the possibility of a pressor substance released from a necrotic liver may have accounted for intractable shock and facilitated these changes in the kidney which in most cases are irreversible and lead to death.

To summarize, I believe that this is a case of panmyelosis in which acute myelogenous leukemia was superimposed. As a result of the myeloproliferative disorder, thrombosis of the hepatic veins ensued resulting in shock and ultimately bilateral symmetrical cortical necrosis of the kidney.

Dr. Delp: Thank you, Dr. Mantz. In the future, shock-like states and a rapidly increasing size of the liver will suggest to all of us the possibility of hepatic vein thrombosis.

## Pathological Anatomical Diagnosis

### Primary

Chronic panmyelosis with myelofibrosis, osteosclerosis, and acute myelogenous leukemia.

Multiple old and recent thrombi, sometimes incorporating megakaryocytes, of small hepatic veins and central veins of liver consistent with the Budd-Chiari syndrome.

Focal lipid depletion of adrenals, advanced.

Bilateral cortical necrosis of the kidney.

## References

1. Damashek, W.: Speculations on myeloproliferative disorders, *Blood*, J. Hematology 6:373, 1951.
2. Linman, J. W., and Bethell, F. H.: Agnogenic myeloid metaplasia, *Am. J. Med.* 22:107, 1957.
3. Palmer, E. D.: Budd-Chiari syndrome, *Ann. Int. Med.* 41:261, 1954.
4. Penner, A., and Berheim, A. I.: Acute ischemic necrosis of the kidney, *Arch. Path.* 30:465, 1940.



## PHYSICIANS' ACTIVITIES

A husband and wife team recently opened an office for practice in Lawrence. **Dr. Robert C. Kimbrough, Jr.**, who had been practicing at the Hercules plant at Sunflower, is specializing in internal medicine, and his wife, **Dr. Victoria F. Kimbrough**, is specializing in ophthalmology. He is a graduate of the John Hopkins School of Medicine, and she was graduated from the University of Tennessee. Both had residencies at the University of Michigan School of Medicine.

**Dr. Winstan L. Anderson**, immediate past president of the Chamber of Commerce in Atchison, was the author of an editorial published in the *Atchison Daily Globe* on January 28. He is now serving as chairman of the Chamber's committee on hotels and motels, and he wrote his editorial on that subject.

**Dr. John G. Shellito**, Wichita, recently spent a month in Rochester, Minnesota, studying cardiac surgery under Dr. John W. Kirklin.

**Dr. Franklin D. Murphy**, chancellor of the University of Kansas, served as a member of a panel which selected "America's Ten Outstanding Young Men of the Year" for the United States Junior Chamber of Commerce.

Announcement has been made by **Dr. George Gill** and **Dr. Jack Dysart** of the Trueheart Clinic, Sterling, that **Dr. Theil Bloom**, who will soon complete internship at Wesley Hospital, Wichita, will join the clinic staff. A native of Liberal, Dr. Bloom is a graduate of the University of Kansas School of Medicine.

**Dr. Charles P. McCoy** has returned to practice in Wichita after having completed a residency in obstetrics and gynecology at St. Louis City Hospital.

Different types of heart disease were described by **Dr. Lyle F. Schmaus**, Iola, when he spoke before the Iola Lions Club recently.

Officers of the Sedgwick County Academy of General Practice, elected for 1958, are: president, **Dr.**

**Jack G. Phipps**; vice-president, **Dr. Robert L. Kasha**; secretary-treasurer, **Dr. Lowell M. Rhodes**; to board of directors for a three-year term, **Dr. Jay K. Wisdom**.

**Dr. J. A. Poppen**, 80-year-old physician in Burr Oak, has announced plans to retire if another physician can be found to practice in that city.

**Dr. E. Grey Dimond**, of the University of Kansas Medical Center, was speaker at a Health Education meeting sponsored by the Woman's Auxiliary to the Wyandotte County Medical Society in Kansas City on February 4.

Plans to join **Dr. H. H. Haerle** in practice at the Marysville Clinic were announced last month by **Dr. Lewis R. Laws**, a graduate of the University of Kansas School of Medicine who served his internship at Wesley Hospital in Wichita and recently completed a two-year period of Army service.

**Dr. M. M. Tinterow**, Wichita, was named alternate director of the American Society of Anesthesiologists for District 15 at the January meeting of the Kansas Society of Anesthesiologists. The district is composed of Kansas and Missouri.

**Dr. Russell J. Eilers** has joined the staff of the University of Kansas School of Medicine as an associate in pathology. He was graduated from the University of Minnesota School of Medicine in 1953 and took postgraduate training in anatomical and clinical pathology there.

**Dr. Victor E. Chesky, Sr.**, Halstead, has been named honorary chairman of the Halstead Hospital Building Campaign.

**Dr. Charles M. Poser**, assistant professor of medicine at the University of Kansas Medical Center, recently became a diplomate of the American Board of Psychiatry and Neurology.

A feature story in the *Emporia Gazette* on February 8 paid tribute to **Dr. Charles C. Underwood, Jr.**, chosen as Emporia's "Man of the Week."



**Dr. Bernard H. Hall** and **Dr. Herbert C. Modlin**, of the Menninger Foundation, Topeka, served as faculty for a seminar on industrial mental health in Chicago recently.

**Dr. James G. O'Shea**, who has been practicing in Dodge City since 1949, moved to Jetmore last month and is now engaged in practice there.

Physician participants in a health education workshop presented by the Woman's Auxiliary to the Shawnee County Medical Society in Topeka on February 10 were **Dr. David E. Gray** and **Dr. Homer L. Hiebert**.

**Dr. D. D. Vermillion**, Goodland, was speaker at the annual father-son banquet of the Men's Brotherhood of Emmanuel Lutheran Church in Goodland last month.

Plans to practice in Paola in association with **Dr. Veryl J. Elson** have been announced by **Dr. Robert E. Banks**, a graduate of the University of Kansas School of Medicine who was recently released from service with the U. S. Navy after a tour of duty in Hawaii.

**Dr. Curtis A. Nystrom**, Cawker City, addressed a rally held in Burr Oak last month to make plans for securing a physician for the Burr Oak community. Dr. Nystrom was induced to begin practice in Cawker City as the result of similar civic effort.

"Neuritis and Neuralgia" was the subject chosen by **Dr. William P. Williamson**, University of Kansas Medical Center, for an address before the Des Moines Medical Library Club recently.

**Dr. Harry W. Horn**, Wichita, was named senior warden emeritus of St. James Episcopal Church in Wichita recently on his retirement from the vestry. The membership granted the recognition for the first time since Dr. Horn was a founder of the church.

**Dr. A. M. Cherner**, Hays, was recently made a fellow of the American College of Radiologists.

*The Kansas City Star* last month took note of the fact that the city of Louisburg is served by two physicians who have each practiced more than half a century there. **Dr. John W. Kelley**, who will be 90 this month, has practiced in Louisburg for 58 years, and **Dr. P. F. Gatley** has been there for 53 years.

**Dr. Claude J. Harwood**, Glasco, spent several weeks in Kansas City recently to take postgraduate work in anesthesiology.

**Dr. Kenneth L. Graham** and **Dr. Thomas W. Graham** announce that **Dr. J. Malcolm Graham** is now associated with them in practice in Leavenworth. The new physician will specialize in pediatrics.

**Dr. Paul C. Laybourne, Jr.**, of the University of Kansas Medical Center, spoke on "Prejudice, Its Effect on Children" before a Parent-Teacher Association group in Lawrence last month. He also spoke on "The Management of Reluctance to Attend School" at a meeting of the American Academy of General Practice in Tulsa.

A feature story in the *Hutchinson News-Herald* last month paid tribute to **Dr. Richard A. Stewart** on his 90th birthday. Although he has been in retirement during the past nine years, he retains an interest in the practice of medicine and its advances.

**Dr. John W. Fair**, acting clinical director at the Parsons State Hospital, was featured speaker at a meeting of the Extension Study Club in Pittsburg last month. More than 200 persons heard Dr. Fair discuss treatment of the mentally retarded and outline the program of the Parsons institution.

"One Success After Another Keys Dr. Wescoe's Career" was the headline given a "profile" of **Dr. W. Clarke Wescoe** in the *Kansas City Kansan* last month. The story told of Dr. Wescoe's work in pharmacology before he became dean of the University of Kansas School of Medicine and then outlined progress at the school under his leadership.

**Dr. S. Paul Hornung**, speaker at a recent meeting of the Rotary Club in Norton, described the

destructive potential that now exists as the result of scientific developments. Dr. Hornung recently attended a mass casualty management school conducted by the Army in Texas.

**Dr. D. D. Fuller**, who has been practicing in Marquette, has begun practice in Lindsborg and will return to see patients in Marquette two afternoons each week.

## DEATH NOTICES

### THOMAS TALLMAN HOLT, M.D.

Dr. T. T. Holt, 82, retired Wichita physician, died at St. Francis Hospital, Wichita, on January 18 after an extended illness. A graduate of University Medical College of Kansas City in 1900, Dr. Holt practiced in Geuda Springs until 1922, when he went to New York City for additional training. He then specialized in internal medicine in Wichita and became a diplomate of the American Board of Internal Medicine. He was the first Kansan to become a member of the American College of Physicians, an organization he served as vice-president in 1942. He was also a member of the American Heart Association and the American Chemical Society. Poor health forced his retirement in 1950. Among the survivors is a son, Dr. James H. Holt, Wichita.

### WILLIAM HOLMES DYER, M.D.

A Kansas City physician since 1919, Dr. W. H. Dyer, 71, died on January 21 after suffering a heart attack while driving his car. He had been physician and surgeon for the Santa Fe Railroad for 15 years and had served the Kansas City Police Department in a similar capacity for 29 years. He was graduated from the University of Illinois College of Medicine in 1916 and came to Kansas in 1919, his private practice being interrupted during World War I for service in the Army Medical Corps in France.

### WILLIAM ROLLAND PALMER, M.D.

Dr. W. R. Palmer, 79, who had practiced in Kansas City almost continuously since his graduation from Kansas City Medical College in 1898, died at his home on January 30. He entered service in World War I as surgeon for the 526th engineer battalion in France. From 1941 through 1945 he served as coroner of Wyandotte County, and during another period he was surgeon for the Kansas City Police Department. He was a member of the Wyandotte County Medical Society.

### HUGH ALLEN HOPE, M.D.

A physician who had served as a member of the Kansas State Board of Health and who was prominent in Republican political circles, Dr. Hugh A. Hope, 72, died at Topeka on February 6 while en route from his home at Hunter to Kansas City. A graduate of Kansas Medical College (now Washburn), Topeka, in 1909, Dr. Hope achieved recognition as one of the greatest athletes in the history of the school and had served a term as president of the institution's alumni association. He began medical practice in Victor, moving to Hunter in 1917 as one of the founders of the city. He was an honorary member of the Mitchell County Medical Society.

### PORTER D. BROWN, M.D.

An honorary member of the Saline County Medical Society, Dr. Porter D. Brown, 77, died at Glendale, California, on February 10. After graduation from Kansas Medical College, Topeka, in 1910, Dr. Brown began practice in Alton, moving to Salina about 30 years ago to form a partnership with Dr. L. S. Nelson, Sr. They later organized the Salina Clinic. Dr. Brown, who was a diplomate of the American Board of Obstetrics and Gynecology, retired several years ago and moved to Denver. He had been living in California since last summer.

### HARLEY JAMES STACEY, M.D.

Dr. H. J. Stacey, 87, who had practiced in Leavenworth more than 50 years before his retirement, died January 27 in Oklahoma City, where he had been living for five years. He was graduated from Cornell in 1892 and then entered the University of Pennsylvania School of Medicine, completing that course in 1896. He was the fourth physician to join the staff of the Cushing Hospital in Leavenworth. At the time of his death Dr. Stacey was an honorary member of the Leavenworth County Medical Society.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

Those who are trying to follow the course of medical legislation find an unusual situation developing in this session of Congress. All of Washington is being subjected to forces, some completely new, that often work at cross-purposes to each other. The result could be a moratorium on health legislation—or again it could be a flood of new laws.

At the start of the session, a new-born interest in science completely dominated the scene—by a frantic spending of billions of dollars we would overtake Russia. That was the theme in Washington, and it persisted despite a few quiet voices that asked whether Russia really had far outdistanced the U. S. or was merely exploiting a slight advantage.

Even before the American satellite started on its orbit, some of the panic had subsided, and most of the legislators had decided that advent of the space age had not removed all of the old problems and opportunities in legislation and politics. The familiar issues were still there, medical panaceas included.

The shock of Russian achievements will, at any rate, produce legislation designed to shore up our educational system. This seems to be generally accepted. For the medical profession, two provisions are of major interest. Scholarships would be for four years—possibly six—offering some assistance to pre-medical students and in some cases to those in the first year of medical school. Also, fellowships would be available for medical and other graduates if they wanted to teach or go into research.

The administration's idea was a program that would cost a billion dollars; several leading Democrats joined in a bill proposing three billion dollars as a stimulant to mathematics and science.

But there are other factors to be reckoned with. For the first time a president set down in black and white in his budget just how he proposed to withdraw the federal government from some activities, or limit its participation, and turn the programs back to the states. Mr. Eisenhower wants to slow down on the Hill-Burton hospital construction program and change its emphasis, he wants to mesh in some veterans' benefits with social security payments, he would have the states do more and the U. S. less in public assistance

(where medical payments are a growing factor), and he hopes to get Congress to drop the \$50 million a year program of grants to help build water treatment plants.

Whether Congress will follow the President's lead in the back-to-the-states movement is another question. At least he has said specifically what he thinks should be done, and when.

There was no expectation that the Russian scare would dilute politics this election year—and it hasn't. If anything, the partisans are struggling harder than ever to make records that will reflect glory on them next November. Some, of course, would be pressing for their projects regardless of the election.

So this is the prospect, in brief:

The Defense Department and science will get the major attention and the major money, but some may spill over into medicine.

There is some interest in a tight domestic budget and returning certain activities to the states, but old fashioned politics combined with a fear of a continuing recession may again open up the federal purse.

Medical legislation, always a popular subject, may get more and more attention as the session rolls on. If so, the Forand bill among others would come immediately to the fore.

### Notes

Several developments in the legislative field on Jenkins-Keogh bills came early in the session. The American Thrift Assembly, representing some 10 million self-employed, urged favorable House Ways and Means action, and the American Medical Association pointed out that the proposal for tax deferment of money paid into retirement plans could help solve the problem of maldistribution of physicians.

In the Senate, a majority of the Small Business Committee introduced a tax relief bill with a J-K provision. The section would allow anyone not now benefiting from a qualified pension plan to set aside 10 per cent of annual income (\$1,000 maximum). The bill went to the Senate Finance Committee.

A limited number of medical scientists from this country and Russia will give lectures in each other's countries this year in an exchange program worked out by the State Department and the Soviet government. Also planned are exchanges of medical journals between medical libraries and of medical films. All these are part of a broad scientific, cultural, and education program between the two nations. Details haven't been worked out.



## Medical Education Week in April

Each member of the Kansas Medical Society has an opportunity this month to both honor and aid his medical school by helping bring the third annual observance of Medical Education Week to the attention of his patients and the public.

During the week of April 20-26, the medical profession will join forces with the Woman's Auxiliary and the medical schools throughout the country in presenting programs emphasizing the progress, problems, and challenges of medical education. The world leadership of American medical schools, their expanding enrollments, research triumphs, and community services are little known by the public at large, and Medical Education Week is designed to create greater public appreciation and support for their continuing achievements. At the same time, it will stress the problems which the foreseeable future holds—increased competition for the qualified school candidate, greater facilities for teaching the growing complexities of medicine, and the need of an expanding and aging population for more doctors. And, not least of all, is the immense cost of medical education which already is a \$200 million annual undertaking.

The six specific aims of Medical Education Week, which our society, in cooperation with our Woman's Auxiliary and the University of Kansas School of Medicine will stress through local radio and television programs, newspaper features, and presentations to community organizations, are to:

1. Portray the key role that medical education plays in the promotion and maintenance of the nation's health and security, and make the public aware that the nation's 83 medical schools are the foundation of our entire health and medical structure;
2. Explain how medical schools are striving to meet the demand for larger numbers of physicians and, at the same time, characterize American medical education;
3. Call attention to the steady progress in the medical sciences, showing what this means in terms of longer life, better health, and greater freedom from disease and disability;
4. Point out the wide range of activities—teaching, research, service, and leadership—carried on by the modern medical school in addition to its job of training new doctors;
5. Make clear the extent and nature of the new challenges to the profession, some growing out of our constantly expanding fund of medical knowledge and some resulting from the mounting complexity of our civilization, and
6. Point out some of the steps being taken constantly to push back the horizons of the medical sci-

ences and to realize the full potential of the nation's health resources.

These objectives will be further emphasized in a coast-to-coast promotional effort now being planned by the national sponsors of Medical Education Week—the Association of American Medical Colleges, the A.M.A. and its Woman's Auxiliary, the Student A.M.A., the National Fund for Medical Education, and the American Medical Education Foundation. Programs and salutes, supplementing our local observance, will be carried on network radio and television, in national publications and syndicated newspaper features, and through civic and industrial organizations.

President Eisenhower, in his personal endorsement, has already invited the American people to set aside this week to consider the work of our medical schools, but its ultimate success will depend most directly on how well and how actively we initiate and conduct this annual community salute to our medical schools . . . Medical Education Week, April 20-26!

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## Basic Science Examination

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology, and physiology on June 3 and 4, 1958, in the auditorium of Wahl Hall, University of Kansas Medical Center, Kansas City. Satisfactorily completed applications for examination must be submitted at least 30 days prior to the examination. Application blanks and other information may be obtained from R. E. Stowell, M.D., secretary of the Kansas Board of Basic Science Examiners, Kansas City 12, Kansas.

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## Legal Conference in May

Legal problems currently facing individual physicians and organized medicine will be the primary discussion topics at the second meeting of state and county medical society executive secretaries and attorneys, May 9-10, at the Drake Hotel, Chicago. Before the final agenda can be set up, the A.M.A. Law Department hopes that medical societies will send in their suggestions on specific legal subjects that would be of the most interest to them. The first such meeting—also sponsored by the Law Department—was held in April, 1956.

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In 1956, there were 1,280 persons killed in U. S. train-car crashes.

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A total of 40,000 Americans were killed in 1956 traffic accidents.

## BOOK REVIEWS

*The Relation of Psychiatry to Pharmacology.* By Abraham Wikler. Published by American Society for Pharmacology and Experimental Therapeutics by Williams and Wilkins Company, Baltimore. 322 pages. Price \$4.00.

Interest in modern psychotherapeutic drugs has not only pervaded the medical profession but has spilled over into the popular press and even into radio and television. At least one book of modern humor, the title of which includes the name of a well-known tranquilizer, is selling well—no doubt partly because of its name. Of importance to the scientific world is the fact that the new psychotropic drugs are at least in some degree responsible for a renaissance of interest in the fields of neurophysiology, psychophysiology, and psychopharmacology—three intimately related areas which are in need of more work.

Dr. Wikler's book is a review of the literature dealing with these fields and relating them to experimental psychology. It was originally conceived as an article for *Pharmacological Reviews*, but the size of the manuscript made it unsuitable for publication in that form, so it appears as a monograph under the imprimatur of the American Society for Pharmacology and Experimental Therapeutics. It seems to this reviewer that the title should actually be "The Relation of Pharmacology to Psychiatry" because the text is concerned with relating the innumerable fragments of knowledge of the basic sciences to the causes and treatment of mental illness. The book is divided into four main sections, the first of which deals with the effect of drugs on human behaviour. Subsequent sections are concerned with theories and mechanisms of drugs actions, the neurophysiological aspects of drugs, and the psychological implications.

The organization as reflected by the table of contents is satisfactory, but the organization within some of the sections is not so good. This is not to be wondered at, considering the tremendous mass of material dealt with, but it is all the more important to the reader. The paucity of sub-headings and paragraph headings does not ease the task of one searching for specific items, and the excessively long paragraphs not only contribute to the reader's difficulty but to his irritation. There is simply no excuse for routinely writing paragraphs of one and two pages, and a paragraph three and one-half pages long should never have been permitted by the editors.

The author reports almost everything that has ever been written on the subject, and one wonders whether he might have selected some of his material more critically. It would seem to be the obligation of an

author of a review article to point out disproved work or to select his citations with extreme care.

The book is a gold mine of information, but the reader has to mine it for himself, refine the ore, and smelt it. It is obviously not a book for the average physician or even for the average psychiatrist, but it should be an extremely useful source book for research men in psychiatry, physiology, and pharmacology. There are 889 references. The index is probably adequate, but not as complete as one could wish. The printing is excellent and on a soft finish paper which makes reading easy. The binding is excellent for a paperback volume.—J.D.R.

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*One Surgeon's Practice.* By Frederick Christopher, M.D. Published by W. B. Saunders Company, Philadelphia. 151 pages. Price \$4.00.

In this short book Dr. Christopher in no way attempts to make it a scientific treatise. He rather looks back over his years of practice and preparation and attempts to describe this preparation, training, development of practice, etc.

It is interesting reading for a practicing doctor although it does not in any way add to his knowledge of the practice of medicine. I would rather recommend the book to the medical student or the young man or woman thinking of or planning to enter the medical field.—S.L.V.

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*A Textbook of Clinical Neurology.* By Israel S. Wechsler, M.D. Published by W. B. Saunders Company, Philadelphia. 782 pages, 179 figures. Price \$11.

This eighth edition, like all its predecessors, pays tribute to the brisk and readable style in which this renowned American neurologist presents information on his specialty. Again, also, the worth-while chapters describing psychological testing and psychiatric syndromes are added to the conventional sections on neurologic examination, clinical neurologic syndromes, etc. A worth-while further addition is a chapter dedicated to the history of neurology and the contributions of the now countless contributors to the field.

This eighth edition continues the tradition of this well-known text as a standard in the library of all those interested in the field.—J.A.S.

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*Digitalis.* Compiled and edited by E. Grey Dimond, M.D. Published by Charles C Thomas, Publisher, Springfield, Illinois. 255 pages. Price \$7.00.

This monograph on digitalis includes material presented in a two-day postgraduate course given in February 1956, plus additional papers contributed by



Dr. Ralph H. Major, Dr. Meyer Friedman, and Dr. George Okita. The contributors who participated as faculty for the postgraduate session were Robert Batterman, Richard Bing, E. Grey Dimond, Santiago Grisolia, Bernard Lown, Aldo Luisada, and William Sodeman, all of whom are working in this field in the United States. The final chapter is a panel discussion by the same group with Dr. Dimond as moderator.

The first chapter of this volume is a reprint from Major's *Classic Descriptions of Disease*, a splendid introduction!

The chapters discussing the pharmacology of digitalis and the more active glycosides with reference to their physiological actions are especially interesting and instructive to the experienced physician and the recent graduate.

Two chapters, *Observation on the Clinical Use of Digitalis* by Robert C. Batterman and *Problems of Bedside Management of Digitalis* are of unusual interest because of their practical value. The discussion of the relationship of potassium and digitalis is pertinent and informative. The chapter on auricular arrhythmias should be read by every physician who uses digitalis. The discussion on the possible wider range between therapeutic effect and toxicity with one of the cardiac glycosides is of note, especially since all the participants of the panel did not concur.

The discussion of the use of acetyl strophanthidin in ascertaining the presence or absence of digitalis intoxication is valuable for one who has time to observe the procedure carefully. The caution against the indiscriminate use of intravenous digitalis preparations is timely.

Dr. Lown's final comments are good because he emphasizes that an initial admission electrocardiogram will not always tell whether a patient has been taking digitalis. His quote from Calvin Kay "The fallacies of clinical judgment and of patients' memory are better avoided by means of a telephone call than by means of an electrocardiogram."

This volume would be a welcome addition to any physician's library.—C.C.U.

## ANNOUNCEMENTS

Courses at University of Kansas Medical Center soon: Otolaryngology, April 9-11; Ophthalmology, April 7-9; Anesthesiology, April 14-16.

Physicians and Surgeons Book Company, Henry and Pacific Streets, Brooklyn, New York, will purchase medical books. Send list of books giving author, title, and date of publication. Company will respond with offer for books they desire to buy.

Daniel B. Kirby fellowship for research in ophthalmology offered by Department of Ophthalmology, New York University-Bellevue Medical Center, 550 First Avenue, New York 16, New York. Appointment for one year at stipend of \$7,000, subject to renewal for two additional years. Applications accepted until May 1, 1958.

The General Practitioner Education Project, jointly sponsored by the American Psychiatric Association and the American Academy of General Practice, offers services of a speakers' bureau. Names of psychiatrists willing to serve as guest lecturers while taking vacation trips available to medical societies, hospitals, etc. Write G. P. Project, American Psychiatric Association, 1785 Massachusetts Avenue, N. W., Washington, D. C.

Postgraduate course on clinical physical medicine, University of Colorado Medical Center, May 5-7, 1958. Write the Center, 4200 East Ninth Avenue, Denver 20, Colorado.

Fellowships offered by National Foundation for Infantile Paralysis, 301 East 42nd Street, New York 17, New York.

World Congress of Gastroenterology, Sheraton-Park Hotel, Washington, D. C., May 25-31. Host organization, American Gastroenterological Association, c/o H. M. Pollard, M.D., University Hospital, Ann Arbor, Michigan.

Congress and graduate instructional course in allergy, Shelburne Hotel, Atlantic City, New Jersey, April 20-25, under auspices of American College of Allergists, 2049 Broadway, Boulder, Colorado (c/o John D. Gillaspie, M.D., treasurer).

Sixth annual interim scientific meeting of Phi Lambda Kappa, national medical fraternity, Deauville Hotel, Miami Beach, Florida, April 13-20. Write Dr. Samuel L. Lemel, 1030 Euclid Avenue, Cleveland 15, Ohio.

Trip to Hawaii planned by Illinois State Medical Society at close of annual meeting of American Medical Association in San Francisco in June. Party will leave by air night of June 26, return by air on July 5 or by S.S. *Lurline* on July 10. Write Mr. W. M. Moloney, Professional Building, "Old Orchard," Skokie, Illinois.



Venereal Disease Postgraduate Conference for physicians sponsored by University of Texas, Baylor, Texas State Department of Health, Texas Medical Association, and USPHS, at M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston, April 23-25. Twenty hours AAGP credit.

Award of \$500 offered by editors of *Modern Medical Monographs* for best unpublished manuscript for a short book on a clinical subject in field of internal medicine. Deadline October 1, 1958. Write Richard H. Orr, M.D., 37 East 67th Street, New York 21, New York.

Council of World Medical Association, Paris, France, May 3-10; General Assembly, Parliament House, Copenhagen, Denmark, August 15-20. Write World Medical Association, 10 Columbus Circle, New York 19, New York.

"Principles and Practice of Internal Medicine" is subject of course to be presented at State University of Iowa College of Medicine, Iowa City, June 2-6 under auspices of American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania.

## COUNTY SOCIETIES

Dr. L. L. Cooper of Fort Scott was named president of the Bourbon County Medical Society at a meeting held last month, succeeding Dr. J. R. Prichard who had held the office for 15 years. Dr. Pratt Irby became vice-president and Dr. James J. Basham, secretary.

"The Immediate Etiological Diagnosis in the Convulsing Patient" was the subject chosen by Dr. Larry Calkins, of the University of Kansas Medical Center, who addressed the Shawnee County Medical Society in Topeka on February 10.

A meeting of the Wyandotte County Society was held at the Town House Hotel on February 18. Speaker was Mr. Mac F. Cahal, executive secretary of the American Academy of General Practice, who discussed medical public relations.

Members of the Leavenworth County Society entertained their wives and members of the Leavenworth School Board at a dinner meeting at the Hotel Cody

on February 8. Mr. C. A. Christ, principal of the junior high school, spoke on "Problems Facing the School of Today."

Dr. Peter A. Rosi, associate professor of surgery at Northwestern University Medical School, Chicago, discussed "Current Concepts of Surgery of the Colon" before the Sedgwick County Society at a meeting in Wichita on February 4.

Officers of the Iroquois Medical Society, elected at a meeting held in January in Greensburg, are: Dr. Lyle G. Glenn of Protection, president; Dr. Ronald McCoy, Coldwater, vice-president, and Dr. William W. Orrison, Plains, secretary.

## Two New A.M.A. Exhibits

Reducing and accidental poisoning of children are the themes of two new exhibits the American Medical Association is offering to medical societies early in 1958. "You Can Reduce" stresses the importance of using will power in the selection of foods. The exhibit illustrates the basic foods that should be eaten every day, those to "fill up" on and those to "cut down" on. Three dimensional models depict the caloric content of certain basic foods. "Poisoning of Children in the Home" pinpoints eight leading offenders, such as aspirin, kerosene, old medicines, and household chemicals. A display of products on a revolving tree-like arrangement also is included in this portable exhibit. Medical society bookings may be arranged through the Bureau of Exhibits.

## CLASSIFIED ADVERTISEMENTS

**FOR SALE**—X-ray machine. General Electric, 100 MA with fluoroscope. One tube. In central Kansas. Write the JOURNAL 2-58.

**POSITION WANTED**—locum tenens or position as assistant to established man. Available from early January through June. Excellent general training, married, have family. Prefer location in or around Kansas City area. Recent graduate. Write the JOURNAL 1-58.

Progressive, growing group of six physicians would like to contact an obstetrician, pediatrician, internist, and general practitioner who have completed military obligations. Very prosperous central Nebraska town under 20,000 offers unlimited future possibilities. Excellent salary first year, attractive partnership thereafter. Write the Journal 3-58.

**FOR SALE OR LEASE**—7-room air-conditioned office recently built. Lucrative practice in rich farming and industrial area in Nebraska. New, open-staff hospital in town. Wish to complete board training. Leaves town with no surgeon. Territory and population warrant two doctors. Write the JOURNAL 5-58.

**LABORATORY X-RAY TECHNICIAN** wanted in Belleville. Work in hospital and in private office. Write the JOURNAL 6-58.

**WANTED LOCUM TENENS**—one year beginning January 1, 1958. Physician interested in industrial medicine and limited general practice. Salary open. Write the JOURNAL 7-58.

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## Language and Communication

### *Outline of Program for Research and Training of Mentally Retarded Children*

**R. L. SCHIEFELBUSCH, Ph.D., *Lawrence, and*  
HOWARD V. BAIR, M.D., *Parsons***

The National Institute of Mental Health recently granted \$165,025 for a three-year project at Parsons State Hospital and Training Center. The fund has been appropriated to the University of Kansas and will be administered under the auspices of the Bureau of Child Research with Dr. R. L. Schiefelbusch, director of the bureau, serving as project director. Dr. Howard V. Bair, superintendent of Parsons State Hospital and Training Center, will serve as co-director. However, many of the policies and much of the direction for the study will stem from an advisory committee made up of Dr. Richard Bartman, Dr. John W. Fair, and Mr. Lloyd Lockwood of the Parsons Hospital; Dr. Bernard Foster, Dr. John Seger-son, and Dr. Cotter Hirschberg of the Menninger Foundation; and Dr. Margaret Byrne and Dr. M. Erik Wright of the University of Kansas. Additional members of these institutions will serve in consulting capacities.

The project was initially conceived through the interaction of the Bureau of Child Research and the staff at the Parsons Hospital and reflects two major points, both of which were discussed at length by the project planners. First, there is a gross deficiency in language and communication skills among mentally retarded children in institutions throughout the country; and, second, Parsons State Hospital and Training Center appears to the discussants to be an especially suitable place to develop an optimal pilot

program in language and communication. Together the two points comprise the rationale which motivated the conceptualization phase of the study.

#### **Significance of the Project**

*Deficiencies in Language and Communication.* The incidence of speech defects among the institutionalized mentally retarded has been found by Schlanger

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**This outline of a three-year speech project to be carried out at the Parsons State Hospital and Training Center will be followed by progress reports as they become available.**

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and Gottsleben at Vineland State Training School to run as high as 79 per cent. Although studies of language and communication skills have not been similarly reported, clinicians recognize that the mentally retarded child has his greatest difficulty in the language area. There are many reasons for speech and language deficits of the mentally retarded, especially the institutionalized. Very likely the environmental setting of the training school and in many instances the pre-institutional home life of the child have not provided ample opportunities for learning good verbal patterns. Studies of developmental retardation conducted by Spitz, Pasemanick, and Levy have indicated that the environment can be a retarding influence of a progressive nature and that under conditions of ad-

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Dr. Schiefelbusch is director of the Bureau of Child Research at the University of Kansas and Dr. Bair is superintendent of the Parsons State Hospital and Training Center.

verse environment, developmental quotients may deteriorate. Studies have also shown that defective speech and language may augment mental retardation by adding social and emotional problems to an already handicapped existence.

Specific impairments among the mentally retarded which may add to the deficits in speech and communication are hearing losses (which affect between 15 and 40 per cent of the mentally retarded); congenital cerebral mal-development or cerebral injury, which may produce symbolic disorders or disarthria; emotional trauma or conflict resulting in fragmentations in language form and content; and autistic manifestations, which produce inability to relate affectively to others. These are, of course, only illustrative impairments among many which influence irregular or retarded development of speech and language.

In brief, the combination of an unsatisfactory speech and language environment, together with the high incidence of impairments which serve as impedimenta to adequate verbal behavior, calls for a full-scale institutional project to develop an optimal program for improving the verbal behavior of the mentally retarded.

The institutional population, being relatively stable in regard to tenure, provides an opportunity for a three-year study of the kind described in this project. Also, the opportunity to study children under controlled environmental conditions provides the research worker with opportunities to investigate the verbal behavior of children in a more complete fashion than would be possible under normal conditions of community living.

However, since the project represents a complicated undertaking, it requires the contributions of several disciplines. For this reason the consultants from the participating institutions represent an important and essential part of the study. Very likely, too, the participation of these research personnel will result in their developing an increasing awareness of the problems of the institutionalized mentally retarded. As the institutions represented gain functional rapport with the project, we may expect that additional research proposals will be generated.

*Advantages of the Parsons Hospital as a Location for the Project.* Since July, 1953, the Parsons State Hospital and Training Center has been reorganized to meet the needs of the educable, institutionalized retarded child. The instructional program is guided by the premise that affective disturbance seriously modifies the educability of any child, but even more seriously the child whose learning ability is already marginal. The opinion is held that mental deficiency both produces emotional disturbances and can be pro-

duced by emotional disturbances; also that separation of a child from its home for long-term institutionalization produces emotional stress, which must be understood and handled if a child is to function at his maximum capacity.

Consequently, Parsons State Hospital and Training Center has developed what the staff refers to as a psychiatrically oriented, multi-disciplined approach to the problems of the educable, institutionalized mentally retarded child.

When a child is admitted, he is placed for a month in an evaluation program. During this time he is seen by a psychiatrist, a pediatrician, a psychologist, an education specialist, a speech therapist, recreation therapist, music therapist, occupational therapist, chaplain, and, if indicated, a vocational counselor.

One month after a child's admission, a conference is held at which each of the above mentioned individuals presents a written report on his observations. A social worker gives information about the parents and the emotional environment in the home. At this conference an appropriate program is planned for the child, and policies are established for home visits.

Two weekly staff meetings are held also for discussion of children who become disturbed with respect to their cottage life. These meetings are supervised by a psychiatrist and are attended by the nurses, aides, and other personnel who have close contact with the children. The group, after discussing the situation, attempt to arrive at a better understanding of the child and of their reactions to the child; and appropriate changes are made in the child's program.

These procedures form the proper framework for the development of a language and communication program. To further expedite the development of such a program, however, the administration has built a set of rooms for the experimental project following suggestions made by the consulting committee. These rooms are now available for the language and communication project activities.

## **The Project Plan and Methods of Procedure**

*Specific Aims.* The purpose of the project is to develop an optimal language and communication program for a selected group of mentally retarded and mentally defective children in an institutional setting. The sub-goals include:

1. The formulation of a set of experimental constructs relative to language as a feature of social adequacy;
2. Diagnostic assessments which include descriptions of the negative and maladaptive habits and reaction patterns affecting language and communication;



3. The development of a battery of language and communication tests for determining gains made in the training program;

4. The development of specific clinical techniques for improving the verbal behavior of mentally retarded children with particular attention to the variations needed for training children who fall in the various diagnostic classifications; and

5. The development of a team program for improving the environmental milieu of the institutional child for purposes of stimulating verbal development. The last named sub-goal represents an attempt to develop creative and motivational experiences in the institutional child's daily activity.

Virtually the entire project, as indicated by the five sub-goals, should be applicable to other hospitals and training schools serving mentally retarded and other types of disturbed and handicapped children.

*Methods of Procedure.* The procedure to be followed in the *exploratory phase* of the project involves investigation of existing research and instructional information and the initial formulation of constructs relative to language and communication. These constructs will be examined in direct relation to the verbal behavior of children at Parsons Hospital. This phase will be extended over a period of several months and will be concomitant with the development of procedures for evaluation and training.

The *testing phase* of the project will be designed to produce evaluation procedures to supplement information available in the case files and will form the basis for selecting two groups of children. One will comprise the primary experimental group in the ensuing language and communication program, and the other will serve as a control group which will provide a reservoir of test subjects for procedures that will be developed during the project. Much of the resulting data will be used to facilitate the planning of individual and group projects during the training program. The testing phase might also result in prognostic scales derived, not only from the language and communication tests, but also from neurological and psychometric data.

As soon as groups have been selected, a program of language and communication training will be initiated. Approximately 130 children in the chronological age group of 6 to 16 with mental ages from 3 to 12 will likely be eligible for the study. However, final decisions relative to inclusion of children in the groups will be based upon the total test data rather than upon a test of intelligence alone. Children will be grouped in cottages so that they may receive markedly different training routines relative to language and communications work. The experimental variable

will be the stimulation and training provided in the language and communication programs.

The over-all language program will be planned with the help of the consultants, the staff at Parsons Hospital, and the research staff. Since the philosophy of the treatment program is also supportive in respects essential to therapy and training, additional impetus could be expected through the efforts of the personnel in these areas. In short, the program will become an intrinsic feature of the educational, recreational, vocational, and treatment programs of the center. This environmental support should add greatly to the effectiveness of the training program.

In general, the program will have three dimensions. The first will be *clinical* and will place emphasis upon the special needs of the child and the applications which will best stimulate and instruct him in developing communicative skills.

The second dimension will be *educational*. Since the experimental unit will be engaged in an educational program and the children will be placed in small groups for instructional purposes, planned units of speech improvement activity will be designed for daily use in that setting. The units will be devised for maximal interest value for the children and will aim to give them functional practice and experience in essential skill areas.

The third dimension will be *recreational*. An active program will be set up for experimental groups to serve the objectives of environmental stimulation and functional experience in social situations. Basic to this process will be the attempt to make more of the recreation program serve the purpose of speech stimulation. In some instances, communication centered activities will replace those which offer little except passive enjoyment. Since many stimulating activities are already in common practice at the Parsons center, they only need to be expanded and systematically organized as a part of an intensive research program in language training.

### The Project Staff

In addition to the director, members of the advisory committee, and the consultants, the project will include four full-time research appointees. The positions have not yet been filled, but will likely correspond to the descriptions included in the project grant request. They are: (1) A *field director*, a research psychologist with primary interest in language and communication; (2) a *speech pathologist* trained in research procedures and also interested in language and communication; (3) a *clinical psychologist* whose specialty will be testing and diagnostic evaluation, and (4) a *speech therapist* who will help to develop the educational and recreational phases of the project.

These research personnel will function with the research director and the consultants in formulating and implementing the study. Fortunately the budget permits salary scales commensurate with the competencies required by the project advisers. A number of candidates are already being screened, and the research team will be announced before September, 1958. The team is expected to change the project in several ways so that the final design may not be restricted to the description presented in this preliminary report.

### Summary of the Project

Tentatively, then, the project should be viewed as a three-year program including the following phases:

First year—

1. Exploratory study of the research literature and a survey of speech, language, and communication behavior of children at Parsons State Hospital and Training Center.

2. Development of evaluation procedures in language and communications.

3. Development of an experimental laboratory in language and communication together with the formulation and application of diagnostic equipment and procedures.

4. Diagnostic assessments of children to be used

as control and experimental groups in the project.

5. Implementation of language and communication training procedures.

Second and third years—

6. Continuation of the language and communication training program.

7. Continuation of the refinements of speech and language evaluation procedures.

8. Continuation of the diagnostic evaluations.

9. Formulation of a manual of training covering both the general language and communication procedures and specific aspects of techniques used with the sub-groups.

10. Publication of the cumulative results of the projects.

11. Formulation and submitting of additional projects requests based upon the findings of the three-year study. The results will probably be used to formulate hypotheses which will be tested in further research projects.

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If a free society is to be preserved, seven elements of personal character must be dominant in its citizenry, namely, self-reliance, individual initiative, personal responsibility, thrift, pride of citizenship, courage and religious faith. To be worthy American citizens, we must be constantly on guard to develop and exercise these seven fundamental elements of personal character on which the maintenance of our freedom depends.

—H. W. Prentis, Jr.

# Periarteritis and Hypertension

## *An Experimental Study in 15 Rabbits*

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Although periarteritis nodosa is a relatively uncommon disease, it has aroused considerable interest and controversy since its original description by Kussmaul and Maier<sup>1</sup> in 1852. Since that time more than 750 cases have been reported in the medical literature, and they have continually attracted widespread interest in the clinical, morphological, and therapeutic problems of this disorder. The increasing incidence of periarteritis as a sequel to the administration of sulfanilamides, serum, penicillin, and other chemotherapeutics has further indicated the need for increasing medical knowledge concerning the pathogenesis of this vascular disease.

Hypertension, hypersensitivity, kidney damage, and various hormonal factors, such as DOCA and anterior pituitary extract, have been cited to play a role in the etiology of periarteritis. Rich,<sup>3-9</sup> Germuth,<sup>10</sup> and Hawn and Jawneway<sup>11</sup> have emphasized hypersensitivity as a factor in pathogenesis; Selye et al.<sup>2,12</sup> and Perry<sup>13</sup> have stressed hormonal influences in the development of periarteritis; Smith and Zeek,<sup>14</sup> Wilson and Pickering,<sup>15</sup> and Goldblatt<sup>16</sup> have considered hypertension as most important in its etiology.

Wilson and Pickering<sup>15</sup> and Goldblatt<sup>16</sup> have stated that a critical level of blood pressure must be reached for periarteritis to develop. Smith and Zeek<sup>17</sup> feel that if the blood pressure is below 200 mm. Hg., periarteritis will not develop. They also state, "There are no reports of periarteritis nodosa in animals whose blood pressures were proven normal or whose kidneys were proven free of pathologic change. The present experiment was devised to investigate the possibility of producing periarteritis-like lesions without the development of a simultaneous rise in systolic blood pressure and without evidence of kidney damage." The purpose of this paper is to present the experimental results and to discuss their role in the etiology of periarteritis nodosa.

### Methods and Procedure

The procedure was to follow exactly the methods of Rich and Gregory<sup>9</sup> by which they have successfully produced periarteritis nodosa with the injection of large amounts of horse serum into rabbits. The experimental group consisted of 16 male New Zealand white rabbits weighing approximately 2 kilograms. As controls, 15 New Zealand white rabbits

of approximately the same weight and from similar litters were chosen. All animals were observed for a five-day control period to obtain base line values for blood pressure, temperature, and urine samples. Procedures, injection dosages, and observation schedules for the control animals were identical with the experimental group except that homologous rabbit serum was used rather than horse serum. The rabbit serum was obtained from older rabbits using an aseptic technique.

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Figure 1 illustrates the experimental schedule. On the first experimental day 10 cc./kilo of horse serum, which contained no preservative, was injected into the marginal ear vein of the experimental group. The control group of rabbits was injected with 10 cc./kilo of homologous rabbit serum. Procedures, injection dosages, and observation schedules were identical for both groups except for the difference in the type of serum used. On the 11th day the animals were skin

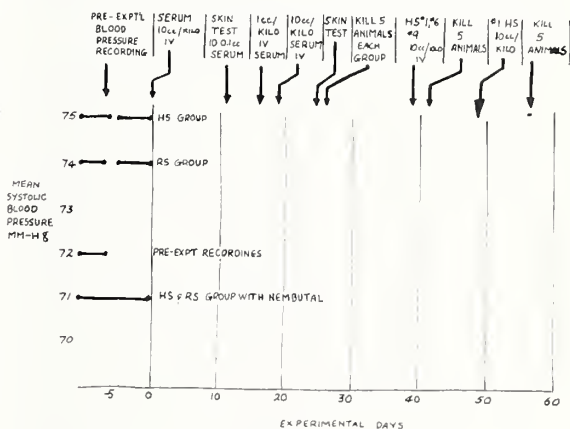


Figure 1



tested with 0.1 cc. of the previously injected type of serum injected intradermally. On the 17th day, one cc. of serum was injected into the marginal ear vein. On the 19th day, 10 cc./kilo of horse serum was again injected intravenously into the horse serum group, and 10 cc./kilo of rabbit serum was injected into the control group. On the 25th day the skin test was repeated.

At regular intervals during the experimental period, urine specimens obtained by catheter were examined and rectal temperatures were recorded. On the 26th, 42nd, and 56th day five rabbits were killed in each group for gross and microscopic study. On the 39th day three of the remaining rabbits receiving horse serum were given an additional 10 cc./kilo of horse serum intravenously. One rabbit of the group received another 10 cc./kilo of horse serum on the 49th day, making a total of 90 cc. of horse serum injected into this animal during the experimental period.

Systolic blood pressures were measured every two to three days, using the Grant-Rothschild ear capsule.<sup>18</sup> This method has previously been used by Kay<sup>19</sup> and by Wilson and Pickering<sup>15</sup> with satisfactory results. The central artery of the ear and the flow of blood through this artery were visualized through the glass top of the air chamber and through the transparent elastic membrane which formed the bottom of the chamber. By increasing the pressure within the system, the flow of blood through the central artery could be stopped. Then, as the pressure was lowered, that pressure at which the blood was first seen to pass again through the artery was recorded through the use of a mercury manometer. This value was taken as the systolic blood pressure.

The capsule was sensitive to blood pressure changes in rabbits produced by environmental stimuli, so it was necessary to place the rabbit being tested into a holder and let it become quiet for five to ten minutes before stable readings were obtained. The average of three or more consecutive readings varying less than three mm. of Hg. constituted one measurement. Constant dilation of the central artery of the ear was essential for consistent measurements of blood pressure. This was accomplished by placing the rabbit's ear in a large pan of warm water of constant temperature prior to each measurement. This method was felt to be more convenient and constant than those used by other authors.<sup>18,19</sup>

Before each animal was sacrificed for post mortem examination it was anesthetized with intravenous sodium pentobarbital, and systolic blood pressures were recorded in the absence of interference from the environment.

Gross and microscopic examination was done on

all animals. Tissues routinely examined were thymus, trachea, lungs, diaphragm, site of intravenous injection at the ear veins, central artery of the external ear, liver, gallbladder, duodenum, pancreas, spleen, mesentery, mesenteric lymph nodes, myocardium, cardiac valves, aorta, adrenal, kidney, and psoas muscle. Initial sectioning revealed that the myocardium contained the greatest number of lesions, so additional sections were taken to provide five or six slices through the myocardium. The tissues were fixed in Zenker-formol and stained with periodic-acid Schiff's technique followed by hematoxylin.

A few of the animals injected with horse serum died prior to their scheduled sacrifice. A member of the control group was killed to match each death of an experimental rabbit.

### Observations

The mean blood pressure in both groups of rabbits was 72 mm. Hg. during the five-day pre-experimental period. It varied between 80 and 66 mm. Hg. The sensitivity of the blood pressure apparatus was demonstrated by injecting 50 gamma of epinephrine IV into a control rabbit. Within 30 seconds the blood pressure rose from 74 mm. Hg. to 130 mm. Hg. Sodium pentobarbital was also injected intravenously and the systolic pressure stabilized at 68-70 mm. Hg. for as long as the animals were sedated. No diurnal variations in blood pressure were observed.

Typical Arthus's phenomena were observed after

ANIMAL NO.	WEIGHT IN GRAMS	FLUSH AFTER INJECT	DAYS IN EXPERIMENT	NO OF INJECTS OF HORSE SERUM	ARTERITIS (COMB OF SEVERITY AND NO)	MYO-CARDIAS	KIDNEY DAMAGE	ANTIS-CHOW MYOLITE	MEAN BLOOD PRESS	MEAN BLOOD PRESS UNDER NEMB SEDATION	MODE OF DEATH
		1ST 2ND									
1	+705	- -	60	4	4+	4+	+	4+	85	70	NEMB.
2	+290	+	16	1	1+	1+	-	1+	68	-	AFTER I.C.C. H.S.
3	+260	+	57	3	4+	4+	-	1+	71	65	NEMB.
4	-305	-	11	1	1+	4+	-	3+	85	-	AFTER 1ST SKIN TEST
5	+200	+	42	2	3+	3+	-	3+	76	66	NEMB.
6	+685	- +	53	2	2+	4+	+	-	73	78	NEMB.
7	+95	-	14	1	-	3+	+	-	75	-	AFTER I.C.C. H.S.
8	-230	+	12	1	4+	3+	+	4+	81	-	PNEM.
9	-95	+	47	3	4+	4+	-	1+	70	-	PNEM.
10	+470	+	41	2	4+	4+	-	1+	70	70	NEMB.
11	+83	-	14	1	-	4+	-	4+	81	-	AFTER I.C.C. H.S.
12	-	-	-	1	-	-	-	-	80	-	AFTER I.C.C. H.S.
13	+510	- +	41	2	3+	3+	-	1+	76	-	PNEM.
14	+735	+	43	2	2+	4+	+	4+	71	67	NEMB.
15	+980	- +	56	2	2+	4+	-	2+	76	88	NEMB.
16	+295	- -	37	2	2+	4+	-	2+	66	64	NEMB.
MEAN	+312 9GM/D		36						75	71	

TABLE 1

HORSE SERUM ANIMALS

PNEM=BRONCHOPNEUMONIA  
NEMB=SODIUM PENTOBARBITAL  
LETHAL DOSE  
H.S.=HORSE SERUM

skin testing all rabbits of the experimental group, but in none of the control group. On the 17th day three animals injected with horse serum died from anaphylaxis; however, as experience was acquired it was noted that fatalities could be prevented if the rate of the injection was reduced. Rabbit 13, for example, which was injected with one cc. of horse serum slowly over a period of four minutes, developed tachypnea, tremors, muscle spasm, loss of bladder and bowel sphincter control, mydriasis, and posterior paraplegia. Despite the severity of these symptoms, the animal survived. The experimental group also showed other signs of sensitivity previously described by Fleischer and Jones<sup>21</sup>—flushing and a mild febrile reaction after each injection of horse serum. The control group, injected with rabbit serum, showed none of the signs of hypersensitivity.

Differences in weight change during the experimental period appeared significant since the experimental group gained less, and some animals lost weight (See Tables I and II). At no time were blood cells or casts found in the urine examinations.

During the experimental period the mean blood pressure of the group receiving horse serum was 75 mm. Hg., of the "rabbit serum group" 74 mm. Hg.—not a significant difference ( $p = .035$ ). After sedation with sodium pentobarbital, the mean for each group was 71 mm. Hg.—again no difference between the two groups ( $p = .001$ ).<sup>\*</sup> Tables I and II illus-

\* A t-test was applied to the standard error of the difference between the means.<sup>25</sup>

ANIMAL NUMBER	WEIGHT IN GRAMS	FLUSH AFTER INJECT	DAYS IN EXPER- IMENT	NO. OF INJECTS OF HORSE SERUM SEVERE ITIS & NO	ARTER- ITIS (COMB OF SERUM SEVERE ITIS & NO)	MYO- CARDIAC DAMAGE	KIDNEY DAMAGE	ANITS- CHOW MYO- CYTES	MEAN BLOOD PRESS	MEAN BLOOD PRESS UNDER NEMB SEDATION	MODE OF DEATH
1R	+470	-	41	2	-	-	-	-	73	69	NEMB LETHAL DOSE
2R	+60	-	37	2	-	-	-	-	72	71	"
3R	+600	-	40	2	-	-	-	-	76	62	"
4R	-30	-	28	2	-	-	-	-	75	80	"
5R	+530	-	38	2	-	-	-	-	81	59	"
6R	+270	-	27	2	-	-	-	-	75	80	"
7R	+870	-	39	2	-	-	-	-	71	65	"
8R	+980	-	48	2	-	-	-	-	68	74	"
9R	+370	-	27	2	-	-	-	-	68	84	"
10R	+165	-	39	2	-	-	-	-	69	84	"
11R	+1095	-	51	2	-	-	-	-	75	72	"
12R	+560	-	54	2	3+	4+	-	1+	79	65	"
13R	+530	-	54	2	+	+	-	3+	78	69	"
14R	+900	-	54	2	-	1+	-	1+	73	80	"
15R	+350	-	30	2	-	-	-	1+	78	65	"
MEAN	512 OR 12 GRAM/D		40						74	71	

TABLE II  
RABBIT SERUM ANIMALS

	EXPERIMENTAL ANIMAL WEIGHTS	CONTROL ANIMAL WEIGHTS
TOTAL BODY	2409 GRAMS	2660 GRAMS
SPLEEN	2.56 GRAMS	1.26 GRAMS
KIDNEY	9.56 GRAMS	7.94 GRAMS
HEART	6.68 GRAMS	6.79 GRAMS
ADRENAL	0.20 GRAMS	0.13 GRAMS

TABLE III

trate the individual distribution of these recordings. It should be noted that there was wide variation within the groups. Animals 1 and 4 in the experimental group had a mean blood pressure of 85 mm. Hg. Orbison chose to explain this slight increase in a few animals as indicative of reaction to necrosis and inflammation rather than as a sustained hypertension.

Fundoscopy examinations of all rabbits revealed no evidence of change in retinal vessels.

### Pathological Findings

Lesions resembling periarteritis nodosa and myocarditis were found in 13 of 16 of the rabbits injected with horse serum. One animal in the control group developed lesions resembling periarteritis nodosa. Most of these lesions were found in the myocardium.

No aneurysms or other gross lesions were seen at autopsy. There appeared to be a difference in the total body, spleen, and kidney weights as illustrated by Table III. However, there were not enough data to make a valid statistical analysis.

There was no difference between groups in the weight or size of the heart, the organ in which the most striking histological lesions were found. In rabbit 13 of the horse serum group, an animal which died suddenly, smooth gross verrucous vegetations were seen on the mitral valve which resembled those observed in human rheumatic valvulitis. Although the heart appeared grossly enlarged, the weight was within normal limits (6.0 grams). This was the same animal which illustrated extreme sensitivity when injected with one cc. of horse serum.

Tables I and II illustrate the incidence of arteritis, myocarditis, Anitschow's myocytes, and kidney damage among members of the two groups of animals. The lesions were graded, using as criteria the number of vessels involved and the severity of angiitis in each animal. Larger numbers of lesions and more severe lesions were usually associated.

Table IV illustrates the method used for grading lesions. After assigning numerical values for both the number of arteries involved and the severity of

the arteritis, the two figures were totaled and this figure was divided in half to reach the final evaluation recorded in Tables I and II.

Thirteen of the 16 animals in the experimental group showed varying degrees of arteritis, as indicated in Table I. The lesions consisted of edema of the vessel wall and fibrinoid degeneration. There was intimal thickening and proliferation with narrowing of the lumen of small arteries, arterioles, and venules. In ten per cent of the lesions round cell and polymorphonuclear infiltration was noted. Three animals had findings resembling Aschoff nodules with perivascular infiltration by Anitschow's myocytes.

Minute areas of myocarditis were found in all of the animals of the horse serum group, typified by polymorphonuclear infiltration and degeneration of muscle fibrils. Anitschow's myocytes were usually found in the heart valves and in areas of myocarditis in the horse serum group. No correlation could be made between the degree of myocarditis or arteritis in individual animals. There was no correlation between the degree of arteritis and the amount of serum injected.

Necrotizing angitis was found sparsely throughout the gallbladder, kidney, and mesentery.

Experimental animals 8, 9, and 13 died, as noted in Table I, prior to their scheduled sacrifice. The deaths were sudden and there was no prior clinical information that differentiated them from the animals that lived. Microscopic examination revealed widespread bronchopneumonia accompanied by exudation into the pleural spaces and polymorphonuclear infiltration. The etiology of the pneumonia was not determined. All other rabbits in the experiment were killed with a lethal dose of sodium pentobarbital, and no evidence of pulmonary disease was seen in these animals.

In one of the rabbits of the control group, arteritis closely resembling that found in the experimental group was noted. Fibrinoid degeneration, medial thickening, and round cell infiltration were all present. Also areas of myocarditis were seen throughout

the heart. In four of the control animals, Anitschow's myocytes were found in the heart valves. No other abnormal pathological conditions were noted in any of the control group. The injection sites and the central artery of the ear which was used for blood pressure determinations were examined. No inflammation or arteritis could be found in these areas.

Kidney lesions were seen in only five of the 16 horse serum treated animals. Thickening of the basement membranes, intercapillary glomerular sclerosis, and formation of epithelial crescents as described by Ehrlich were noted.<sup>22</sup> These were confined to small sections of otherwise normal kidney tissue (Table I).

## Discussion

The vessel changes pictured in this experiment are similar to the arteritis described by Rich and Gregory,<sup>9</sup> Smith and Zeek,<sup>17</sup> and Hawn and Jawneway.<sup>11</sup> The percentage of arteries involved in each microscopic section varied from 25 to 50 per cent. The above authors did not report the incidence of vessels affected in their animals, but since similar methods were used in their experiments a scarcity of lesions can likewise be suspected. It is difficult to anticipate whether such a small number of lesions could give rise to an increase in blood pressure. At any rate, this experiment demonstrates that the vessel changes were not associated with and were not produced by hypertension.

Orbison<sup>20</sup> has previously reported results similar to those in this paper using like methods of study. He found no significant elevation of blood pressure in rabbits sensitized to horse serum, even though acute necrotizing and inflammatory lesions of arteries occurred. He failed to discuss the significance of his findings, which is perhaps as important as the experimental results.

In order to examine the contribution of the present experiment to the problem of periarteritis and hypertension, a brief review of some of the most significant evidence is worthwhile. Smith and Zeek,<sup>13</sup> Wilson and Pickering,<sup>14</sup> and Goldblatt<sup>15</sup> noted development of periarteritis nodosa during the production of experimental hypertension. Symmers<sup>23</sup> and Braunstein<sup>24</sup> feel that pulmonary hypertension seems to be the major etiological factor in the development of periarteritis nodosa in the pulmonary bed.

Lober and Lillehei<sup>25</sup> recently reported the development of periarteritis nodosa in two cases distal to the repair of coarctation of the aorta. Rather and Cohn<sup>26</sup> have noted periarteritis in the vessels of the liver following grafts of the aorta to the portal vein. The work of Selye and Stone<sup>12</sup> indicates that while pituitary preparations and other humoral substances of renal and adrenal origin are capable of producing

NUMBER OF ARTERIES INVOLVED PER SLIDE		SEVERITY OF ARTERITIS
0-25%	1+	EDEMA OF MEDIA
25-50%	2+	FIBRINOID DEGENERATION
50-75%	3+	INTIMAL THICKENING
75-100%	4+	ROUND CELL INFILTRATION

CRITERIA FOR GRADING ARTERIAL LESIONS  
TABLE IV



periarthritis nodosa, they do not give rise to the vessel changes in an area protected against intravascular pressure by constricting ligatures.

As a result of evidence such as this, Byron and Dodson<sup>27</sup> have proposed that the lesions of periarthritis nodosa are produced by increased intravascular tension which stretches the wall of the vessel leading to necrobiosis and deposition of fibrinoid. This theory has led many workers to believe that the differences in severity of vascular damage observed in experimental data reflect the rapidity of onset and the levels of hypertension produced.<sup>12, 13</sup> Furthermore Hopps<sup>28</sup> suggests that vascular injury resulting from prolonged spasm may produce a *locus minoris resistentiae* where the combination of antigen-antibody could localize and enhance an allergic arteritis. These theories await further experimental investigation.

However, this experiment presents data contradicting the suppositions proposed by Byron and Dodson,<sup>25</sup> Smith and Zeek,<sup>14</sup> Wilson and Pickering,<sup>15</sup> and Goldblatt,<sup>16</sup> for it makes clear that periarthritis can develop in the absence of generalized hypertension and that the association between the two diseases may not be as binding as was thought. In fact, in no reported series of hypertensive animals or patients has there been an incidence of necrotizing angiitis greater than 85 per cent, and in most series the incidence has been much less.

A clinical correlation with the broad problem of human periarthritis is interesting and useful. Although disease in rabbits is not necessarily applicable to man, the ultimate aim of this experiment is its application to human ailments. Evidence that hypertension is not essential for development of periarthritis nodosa can be supported by clinical data. In 175 cases reviewed by Nuzum,<sup>29</sup> it was found that 46 per cent of patients with periarthritis nodosa had no hypertension. He points out that hypertension is actually only a physical finding reflecting vascular and renal disease, and that it is a late development in many cases.

Bank<sup>30</sup> divides his series of 42 cases into three groups: one in which there is overt evidence of an allergic mechanism and no hypertension (hypersensitivity angiitis); another in which malignant hypertension dominated the clinical picture without signs of hypersensitivity, and antedated the symptoms of peripheral arterial disease; and the last in which hypertension was never prominent and occurred only after evidence of vascular disease had been present for some time.

The experimental findings of this paper would best fit into Bank's first category and are only one part of the comprehensive issue of human periar-

ritis. The three groups of cases discussed by Bank further call attention to the possibility of several etiologies responsible for the development of periarthritis nodosa. These possibilities (i.e. hormonal, such as renal or adrenal, as well as an antigen-antibody) were briefly enumerated in the introduction of this paper and have been reviewed extensively in the literature.

Recently Skelton<sup>31, 32</sup> found that unilaterally nephrectomized rats forced to drink one per cent sodium chloride developed hypertension and widespread vascular disease following unilateral adrenalectomy and contralateral adrenal enucleation. This strongly supports the hypothesis that altered adrenocortical function can be of fundamental importance in the pathogenesis of certain forms of hypertension. The mechanism by which the regenerating adrenal cortex is linked etiologically with the production of hypertension and periarthritis is not clear.

In Skelton's experiment, moderate atrophy of the thymus and retardation of growth in the adrenal enucleated rats suggest excess secretion of glucocorticoids, but the simultaneous development of periarthritis nodosa suggests that mineralo-corticoids also are secreted in excess, since these lesions are known to be produced by desoxycorticosterone acetate and inhibited by glucosteroids such as cortisone. Perhaps the simultaneous development of these divergent effects may be explained by the overproduction of a single steroid as aldosterone, which has been shown to possess both glucocorticoid and mineralo-corticoid activity.

Previously Rich and his co-workers<sup>33</sup> studied the effects of cortisone and ACTH in rabbits that were sensitized to horse serum and reported a striking decrease in incidence of vascular lesions. Bagenstoss<sup>34</sup> reported temporary relief in human periarthritis nodosa treated with cortisone. Apparently hormonal

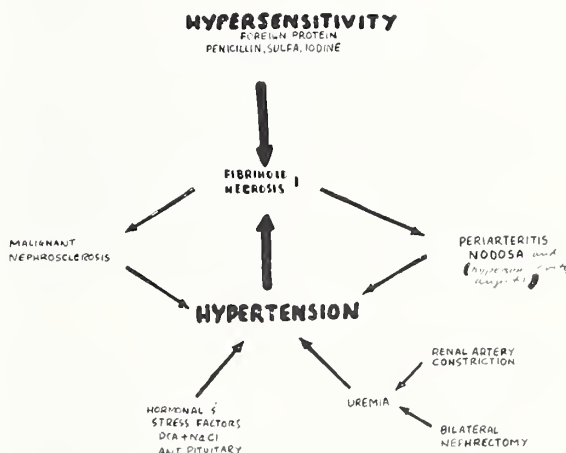


Figure 2

influences are important in the etiology of both periarteritis and hypertension, but several essential points are as yet unsupported by experimental proof.

Thus hormonal factors as evidenced by the above discussion, hypersensitivity first related by Rich and Gregory<sup>39</sup> and illustrated by this experiment, and hypertension, usually a result of some degree of interference with the blood supply of one or both kidneys, all seem to play a role in the development of periarteritis. Figure 2 exemplifies how each of the above processes may enhance the production of fibrinoid change and are manifest as different yet apparently similar arterial lesions. In individual cases, experimental or clinical, the evidence may appear to point to one predominant agent as the most probable etiology. However, once the fibrinoid change, which may well be the common denominator in the whole process, has developed, many factors may then accentuate the vascular damage.

It is evident that this is a fertile field for future investigation, particularly into the enigmas of antigen-antibody and hormonal biochemistry. This experiment has added to our knowledge by pointing out that hypertension is not essential for the development of periarteritis and by serving to emphasize that more than one factor may be accountable for the vascular lesions discussed.

## Summary

1. Systolic blood pressures were measured in 15 rabbits injected with large doses of horse serum.
2. As controls, 15 rabbits were injected with homologous rabbit serum.
3. Animals were autopsied from periods of 10 to 60 experimental days.
4. Myocarditis and lesions resembling periarteritis nodosa were found in 13 of 15 rabbits injected with horse serum.
5. One rabbit injected with rabbit serum developed periarteritis-like lesions.
6. No sign of significant kidney damage was present in the majority of animals.
7. No increase in systolic blood pressure was noted in the animals of either group throughout the experimental period.
8. Thus necrotizing angiitis can be developed in rabbits without the presence of simultaneous hypertension or severe kidney damage.

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## Maternal Death Study—Case History

The patient was a 23-year-old white gravida 2, para 1, who died in a large, accredited, general hospital. Death was certified as due to "shock due to hemorrhage secondary to rupture of the lower uterine segment." Prior to death she was delivered of a 13-pound 14-ounce stillborn. No autopsies were obtained.

The patient reported for prenatal care in the fourth lunar month, there being no initial abnormalities except obesity. There were no abnormalities during 12 prenatal visits other than excessive weight gain to 230 pounds.

Seven days past the expected date of confinement, she was admitted to the hospital in suspected labor. No fetal movement had been felt for two days. The fetus was dead with head floating in L.O.A. position, and it was thought that it was excessive in size for a term fetus, there being some impression of disproportion. The first stage of labor was 9½ hours, and after one hour in the second stage the head was crowning. At this point, progress ceased. After 11½ hours the patient was anesthetized with cyclopropane and an obviously large head was delivered by forceps with moderate difficulty. During the period of inactivity, Pitocin, one minim, was given three times without notable effect.

The shoulders became impacted, and the combined efforts of the physician and an assistant were required to deliver them. After manual removal of the placenta, cervical and vaginal lacerations and the episiotomy were repaired. Blood loss was estimated at 500-800 cc. Within a few minutes, the patient went into profound shock. Three certified obstetricians were present within ten minutes. There was no external bleeding, but it was felt that the patient was terminal. Subsequent efforts to save her included 19 pints of blood, intratracheal intubation and administration of oxygen under pressure, cardiac stimulants, thoracotomy with heart massage, and finally laparotomy. The last disclosed a laceration through the cervix into the vagina with 2500 cc. of blood in the peritoneal cavity. The patient was pronounced dead.

**COMMITTEE OPINION:** The committee classified this death as preventable but without censure of the physician, it being recognized that the vaginal delivery of a huge fetus is technically fraught with danger. In retrospect, the elements of error are: failure to appreciate the size of the fetus and pursue the necessary diagnostic procedures to arrive at proper method of delivery; the use of Pitocin and extreme fundal pressure, failure to consider cleidotomy or other destructive operation with a dead fetus; failure to diagnose the rupture at the time of the postpartum examination.

**CLASSIFICATION:** OBSTETRICAL DEATH; PREVENTABLE. NO AUTOPSY.

(One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.)



## PRESIDENT'S PAGE

DEAR DOCTOR:

There may be some very rough going ahead. It is prudent that we pause and reconnoiter. Blithely, serenely, we chug along, assuming naïvely that our way of life will continue on its course unchanged, that we need merely maintain the status quo.

Cynics say we are in a cycle periodically repeated throughout history: free democratic civilization becoming communal, carried beyond limits of individual freedoms and initiative; levelling, eventual downgrading, deterioration; despair and the cry for a strong leader; subsequent deterioration through usurpation, tyranny, oppression; finally revolt, disorganization, anarchy; eventually slow painful reorganization back to an equable, rational civilization again.

Fantastically impossible? Don't believe it! It has happened before, repeatedly. Actually there are already potentialities that could produce terrific acceleration of such a cycle. We may "never know what hit us."

What can *we*, the medical profession, do about it? Much! A lot!

Politicians and self-seekers gain followings by promising much for nothing, by promising to take from a small segment of society to give to a larger segment. Bismarck in 1885 discovered the tremendous profit in the votes of a misguided populace by promising "free" medical services. Today our politicians craftily follow his example: "free" medical services to the millions of ex-servicemen, possibly eventually to their dependents, also; full social security to all past 50 who can persuade a doctor to declare them disabled; the same now suggested for younger ages; "free" medical services to everyone on social security (the pending Forand bill); expansion of Medicare to include many other federal groups, ultimate coverage of the entire population under the misnomer of "national compulsory health insurance." Every Congress moves a step closer to that ultimate goal, sublimely oblivious to the resulting depreciation in quality of services, the astronomical multiplication of costs under bureaucratic administration, the paralysis of individual ambition and pride, and an end to our vaunted striving for excellence and improvement in quality of services.

There *is* much we can do. First, the obvious potential political pressure we can command, if only we make the effort vigorously, thoughtfully, persistently, individually, and in organized unison. This we can and *must* do.

We must comprehend the great force of Blue Shield as the physician-sponsored, physician-controlled plan to alleviate economic stresses of illness. There must be improvement and expansion of Blue Shield to meet ever-expanding demands at all economic levels under progressive inflationary pressures.

We must establish the quality of our services, make certain that recipients realize and understand that they *are* receiving service of highest quality, at a cost comparably within reason.

Further, we must decisively and vigorously maintain professional integrity, if we are to hold a position of strength and forceful influence toward political trends. There must be complete sincerity as to professed quality of service and reasonableness of our fees. There must be an end to the proven instances of duplicity and charge-padding which are imperilling the development of comprehensive insurance programs. There must be effective curbing of unwarranted and exorbitant charges under such programs as Medicare. There must be reasonableness, fairness, understanding, and restraint in conduct of indigent care programs.

By and large, the profession conscientiously meets these requirements; but, as an organized entity, we must control the exceptions, too, if we and our preferred mode of living are to endure.

*Fraternally yours,*



*President*

## WELCOME TO WYANDOTTE!

Once again we of Wyandotte have the honor and the pleasure of being hosts to the Kansas Medical Society at its annual meeting. In this, the 100th year of the Society's existence, the thought of the century spanned stirs the imagination to picture scenes of the conclaves of a by-gone era, as the 1958 call goes out to all of you in the lands of the Miamis and the Cherokees, the Pottawatomies and Osages, the Wichitas, and the Shawnees and Pawnees, to gather together with us at the meeting of the waters.

While we marvel at the enormity of the changes that have taken place—in our country, in our daily living, and in the practice of medicine—during the lifetime of the Society, we are apt to overlook the fact that the *rate* of change is constantly accelerating. Thus, in the last ten years or so we have seen changes to compare in magnitude with those of all the rest of the past hundred years. In this short time we have acquired H-bombs, ICBM's and satellites. Through a most remarkable selective migration we have a host of von Brauns and a markedly changed composition of the medical profession in our country. Ultrasonic jet travel is commonplace, and human space flight is just around the corner. In medicine we have immunization against polio, radioactive isotopes, and Medicare. It's not all to the good, to be sure, but the point is that things are moving faster than you think and that May 4-7 is the time for you to get "up-to-date in Kansas City."

There have been many changes in the local scene since the last annual meeting was held here in 1952, and we hope you will come and experience them. Those driving from the west may enjoy the new Kansas Turnpike. Near its 18th Street exit is our meeting place, the new Armory, said to be one of the finest places in the state for a meeting of this sort. Even the order of events is new this year, so you are cautioned to pay particular attention to the program, which is printed in this issue. Note the changed times of the medical assistants' sessions, of the House of Delegates meetings, and of the sports activities. Finally, attention is called to the schedule of the concurrent meetings of the Academy of General Practice and of the specialty groups and, for the ladies, the extensive program of the Auxiliary.

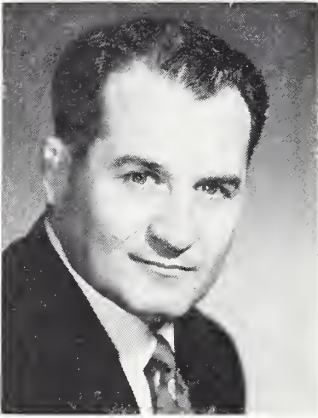
Many people, officers of the several organizations involved, and members of innumerable committees, have been working for a long time to assure the success of this meeting. Therefore, we invite you with the confident expectation that you will have a wonderful time, and we extend to you our most hearty welcome!

William F. Roth, Jr., M.D., *President*  
Wyandotte County Medical Society

# 99th Annual Session, Kansas Medical Society

*Sunday, May 4, through Wednesday, May 7, 1958*

## SCIENTIFIC SPEAKERS



JOHN J. BONICA, M.D.

Tacoma, Washington

Graduate, Marquette University School of Medicine, 1942; Director, Department of Anesthesiology, Tacoma General Hospital and Pierce County Hospital; Consultant in Anesthesiology, University of Washington School of Medicine, Madigan Army Hospital, Veterans Administration Hospital; Diplomate, American Board of Anesthesiology; Member, American Society of Anesthesiologists, Inc. Author, *Management of Pain*, 1953. Collaborator, *Clinical Cardiology*, 1952, *Modern Trends in Anesthesia*, 1957, *Drugs of Choice*, 1957.

Specialty: Anesthesiology.

Sponsor: Paul H. Lorhan, M.D., Kansas City.

F. WALTER CARRUTHERS, M.D.

Little Rock, Arkansas

Graduate, Baylor University College of Medicine, 1916; Associate Professor of Orthopaedic Surgery, University of Arkansas Medical College; President, Mid-Central States Orthopaedic Society; Chief of Orthopaedic Department, St. Vincent's Infirmary, Little Rock; Chief Consultant of Orthopaedic Surgeons, Veterans Administration Hospital, North Little Rock; Diplomate, American Board of Orthopaedic Surgery; Member, Clinical Orthopaedic Society, American Academy of Orthopaedic Surgery, American Association for Surgery of Trauma.

Specialty: Orthopedics.

Sponsor: C. L. Francisco, M.D., Kansas City.





GEORGE CRILE, JR., M.D.

Cleveland, Ohio

Graduate, Harvard Medical School, 1933; Head of Department of General Surgery, Cleveland Clinic Foundation, since 1956, and Member of Staff, Department of Surgery, since 1937; Military Service in Navy, 1942-1945; Diplomate, American Board of Surgery; Fellow, American College of Surgeons; Member, American Goiter Association, American Surgical Association, Central Surgical Society, Southern Surgical Association, American Gastro-Enterological Association.

Specialty: Surgery.

Sponsor: Stanley R. Friesen, M.D., Kansas City.



BENJAMIN FELSON, M.D.

Cincinnati, Ohio



Graduate, University of Cincinnati College of Medicine, 1935; Professor and Director of Radiology, University of Cincinnati, since 1951; Director, Departments of Radiology, Cincinnati General, Drake, Children's and Dunham Hospitals, since 1951; Consultant, Dayton Veterans Administration Hospital; Chief Consultant in Radiology, Cincinnati Veterans Administration Hospital; Military Service in Army, 1942-1945; Diplomate, American Board of Radiology; Fellow, American College of Radiology; Member, Radiological Society of North America, Association of University Radiologists.

Specialty: Radiology.

Sponsor: Peter E. Hiebert, M.D., Kansas City.



ARTHUR GROLLMAN, M.D.

Dallas, Texas

Graduate, Johns Hopkins University School of Medicine, 1930; Professor and Chairman of Department of Experimental Medicine, Southwestern Medical School of the University of Texas, since 1950; Consultant in Internal Medicine, Baylor Hospital; National Civilian Consultant to the Surgeon General, U. S. Air Force; Diplomate, American Board of Internal Medicine; Fellow, American College of Physicians, American Association for the Advancement of Science; Member, American Society for Pharmacology and Experimental Therapeutics, Society for Experimental Biology and Medicine; Author, Ten Texts on Endocrinology, Pharmacology, Physiology, and Therapeutics.

Specialty: Internal Medicine.

Sponsor: Lee H. Leger, M.D., Kansas City.

A. MATHESON, M.D.

Chicago, Illinois

Graduate, Rush Medical College, 1924; Attending Pediatrician, Michael Reese Hospital; Chief of Pediatric Allergy Clinic, Michael Reese Hospital; Diplomate, American Board of Pediatrics; Member, American Academy of Pediatrics, American Academy of Allergy.

Specialty: Pediatrics.

Sponsor: Frederic Spcer, M.D., Kansas City.



WALTER REICH, M.D.

Chicago, Illinois

Graduate, University of Illinois College of Medicine, 1929; Professor of Gynecology, Cook County Graduate School of Medicine; Assistant Professor of Obstetrics and Gynecology, Chicago Medical School; Attending Gynecologist, Cook County Hospital; Consulting Gynecologist, Oak Forest Infirmary and Oak Forest Tuberculosis Hospital, Hazel Crest General Hospital, Fox River Tuberculosis Sanitorium, Geneva General Hospital; Diplomate, American Board of Obstetrics and Gynecology; Fellow, International College of Surgeons, American College of Surgeons; Author, *Practical Gynecology*, Now in Second Edition.

Specialty: Obstetrics and Gynecology.

Sponsor: Albert C. Harms, Jr., M.D., Kansas City.



**WILLIAM H. REMINE, M.D.**

Rochester, Minnesota

Graduate, Medical College of Virginia, 1943; Head of a Section in General Surgery, Mayo Clinic; Fellow in Surgery at Mayo Foundation, 1944-1945; Military Service in Army, 1945-1947; Fellow in Surgery at Mayo Foundation, 1947-1950; Appointed to Surgical Staff, Mayo Clinic, 1950; Master of Science Degree from University of Minnesota, 1952; Diplomate, American Board of Surgery; Fellow, American College of Surgeons.

Specialty: Surgery.

Sponsor: Robert W. Wright, M.D., Kansas City.



**ALFRED R. SUGG, M.D.**

Ada, Oklahoma

Graduate, University of Arkansas School of Medicine, 1924; Private Practice in Ada since 1926; Head of Urological Service and Former Chief of Staff, Valley View Hospital, Ada; Past President, State and County Medical Associations; Past President, Oklahoma Urological Association; Charter Member, Southwest Surgical Congress; Diplomate, American Board of Urology; Fellow, International College of Surgeons; Member, South Central Section, American Urological Society; Author, Papers on Nephropexy, Original Technique of Suprapubic Prostatectomy.

Specialty: Urology.

Sponsor: Oscar W. Davidson, M.D., Kansas City.



**BRUCE K. WISEMAN, M.D.**

Columbus, Ohio

Graduate, Indiana University School of Medicine, 1928; Chairman, Department of Medicine, Ohio State University College of Medicine; Diplomate, American Board of Internal Medicine; Fellow, American College of Physicians; Member, American Society for Experimental Pathology; Central Society for Clinical Research, Society of Experimental Biology and Medicine.

Specialty: Internal Medicine.

Sponsor: Sloan J. Wilson, M.D., Kansas City.



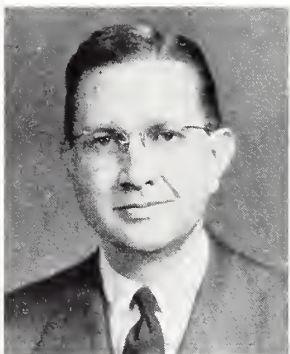


## MEDICOLEGAL SPEAKERS



FORD HARBAUGH, LL.B., Wellington

Graduate, University of Denver Law School, 1934; Engaged in General Practice of Law in Wellington; Special Assistant Attorney General of Kansas since 1951; Chairman, Kansas Bar Association Committee on Relations with the Medical Profession; Attorney for Kansas Highway Commission, 1938-1942; Military Intelligence Corps, U. S. Army, 1942-1946; Probate Judge, Sumner County, Kansas, 1946-1949; County Attorney, Sumner County, Kansas, 1949-1953.



EDWARD J. RYAN, M.D., Emporia

Graduate, University of Kansas School of Medicine, 1936; Practicing Physician in Emporia, Specializing in Internal Medicine; Diplomate, American Board of Internal Medicine; Fellow, American College of Physicians; Member of Council, Kansas Medical Society; Vice-President, Kansas Blue Shield; Lecturer in Medicine, University of Kansas School of Medicine; Member, Central Society for Clinical Research, American Diabetes Association, the Endocrine Society.

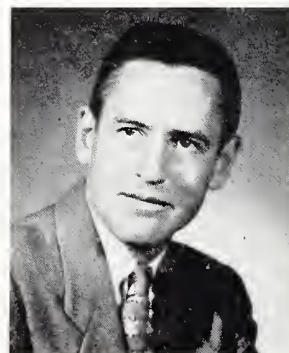
MURRAY C. EDDY, M.D., Hays

Graduate, Rush Medical College, Chicago, 1926; Practicing Physician in Hays, Specializing in Surgery; Fellow, American College of Surgeons; Two Terms as Councilor, Kansas Medical Society; President, Kansas Medical Society, 1954-1955; Currently Chairman of Society's Committee on Medical Schools and Committee on Nominations.



CHARLES E. HENSHALL, LL.B., Chanute

Graduate, University of Kansas School of Law, 1940; Engaged in General Practice of Law in Chanute since 1946; Employed by Claims Department, Travelers Insurance Company, 1941-1942; Service in Army Signal Corps, 1942-1946; Graduate of Signal Corps Officers' Candidate School, Fort Monmouth, New Jersey, 1942, Then on Staff and Faculty There, Later on Contract Termination Work; Assistant Attorney General of State of Kansas, 1946.



# Hosts for the Meeting

## *Kansas City Physicians Planning the 1958 Session*

GENERAL CHAIRMAN—LEWIS G. ALLEN, JR., M.D.

### ADVISORY AND PROGRAM COMMITTEE

Maurice J. Ryan, M.D., Chairman  
William H. Algie, M.D.  
Stanley R. Friesen, M.D.  
Peter E. Hiebert, M.D.  
Maurice V. Laing, M.D.  
Lee H. Leger, M.D.  
Lee E. Rook, M.D.  
W. Clarke Wescoc, M.D.

### ARRANGEMENTS AND ENTERTAINMENT

Roland W. Stitt, M.D., Chairman  
James E. Bresette, M.D.  
Paul R. Carpenter, M.D.  
James G. Lee, M.D.  
Frank A. Rieke, M.D.  
Earl C. Sifers, M.D.  
Robert W. Wright, M.D.

### COMMERCIAL EXHIBITS

William T. Sirridge, M.D., Chairman  
Max S. Allen, M.D.  
Victor E. Bolton, M.D.  
Lawrence E. Leigh, M.D.

### SCIENTIFIC EXHIBITS

Wray Enders, M.D., Chairman  
Robert E. Bolinger, M.D.  
Larry E. Calkins, M.D.  
Philip C. Nohe, M.D.  
William P. Williamson, M.D.

### RECEPTION AND REGISTRATION

Members of Wyandotte County  
Medical Society

### PUBLICITY

Francis J. Nash, M.D.  
Maurice A. Walker, M.D.

### SPORTS EVENTS

Ernest W. Mitts, M.D.  
Albert J. Rettenmaier, M.D.

### AUXILIARY

Harold V. Holter, M.D.

## Program for Sunday, May 4, 1958

### *Town House Hotel*

12:00 Annual Meeting and Luncheon, Blue  
Shield Board of Directors

4:00 Meeting of Council, Kansas Medical So-  
ciety

6:00 Cocktail Party by Wyandotte County

Academy of General Practice for Guest  
Speakers and Their Sponsors

# Program for Monday, May 5, 1958

*Kansas National Guard Armory, 800 South 18th Street  
Two Blocks North of 18th Street Exit of Turnpike*

7:30 House of Delegates Breakfast and Meeting      1:30 Intermission to Visit Exhibits

9:00 Opening of Registration Desk

9:00 Opening of Exhibits

2:00 Specialty Group Meetings for

## FIRST GENERAL SESSION

George E. Burket, Jr., M.D., Kingman, *Presiding*

### 10:30 ADDRESS OF WELCOME

William F. Roth, Jr., M.D., Kansas  
City  
President, Wyandotte County Medi-  
cal Society

### 10:45 SOME PROBLEMS IN THE TREATMENT OF CANCER

George Crile, Jr., M.D., Cleveland

### 11:15 PENICILLIN REACTIONS IN CHILDREN

A. Matheson, M.D., Chicago

### 12:00 LUNCHEON—QUESTION AND ANSWER SES- SION, GUEST SPEAKERS PARTICIPATING

Orville R. Clark, M.D., Topeka, *Presiding*

Anesthesiologists—Page 157

EENT Specialists—Page 157

General Practitioners—Page 158

Obstetricians—Page 158

Orthopedists—Page 158

Pathologists—Page 158

Pediatricians—Page 159

Radiologists—Page 159

Surgeons—Page 159

Urologists—Page 159



# Specialty Group Meetings

*Monday Afternoon, May 5, 1958*  
*Kansas National Guard Armory*

## FOR ANESTHESIOLOGISTS

Kansas Society of Anesthesiology  
Dale U. Loyd, M.D., Wichita, President

### 2:00 A CLINICAL APPRAISAL OF HALOTHANE (FLUOTHANE) AS AN ANESTHETIC AGENT

John I. Davies, M.D., Kansas City, and  
Paul H. Lorhan, M.D., Kansas City

Discussion

### 2:35 ANALGESIA AND ANESTHESIA TO THE POOR RISK OBSTETRICAL PATIENT

John J. Bonica, M.D., Tacoma

Discussion

### 3:40 INFANT RESUSCITATION

A. O. Tetzlaff, M.D., Wichita, and  
Ray T. Parmley, M.D., Wichita

Discussion

### 4:15 SURVEY OF ANESTHESIA AND SURGICAL MOR- TALITY IN THE STATE OF KANSAS

Paul H. Lorhan, M.D., Kansas City

Intermission to Visit Exhibits

### 4:35 BUSINESS MEETING AND ELECTION OF OF- FICERS

## FOR E.E.N.T. SPECIALISTS

Eye, Ear, Nose and Throat Section, Kan-  
sas Medical Society

Max S. Lake, M.D., Salina, President

### 2:00 SYMPOSIUM—SECRETORY OTITIS MEDIA

Clarence H. Steele, M.D., Kansas City,  
*Moderator*

#### PATHOGENESIS

Robert B. Wilson, M.D., Kansas City

#### DIAGNOSIS

Victor R. Moorman, M.D., Hutchinson

#### TREATMENT

Norton L. Francis, M.D., Wichita

3:00 Intermission to Visit Exhibits

### 3:15 MOVIES ON INTRAOCULAR SURGERY

Charles A. Crockett, M.D., Kansas City,  
*Moderator*

4:15 Business Meeting

# Program for Monday, May 5, 1958

*Kansas National Guard Armory, 800 South 18th Street  
Two Blocks North of 18th Street Exit of Turnpike*

## FOR GENERAL PRACTITIONERS

Kansas Chapter, American Academy of  
General Practice

Bruce P. Meeker, M.D., Wichita, Pres-  
ident

### 2:00 PERTINENT POINTS FOR PRACTITIONERS— PART 1

Alfred R. Sugg, M.D., Ada

### 2:30 PELVIC PAIN

Walter Reich, M.D., Chicago

### 3:00 Intermission to Visit Exhibits

### 3:15 PERTINENT POINTS FOR PRACTITIONERS— PART 2

Alfred R. Sugg, M.D., Ada

### 3:45 THE PRACTICAL APPROACH TO THE DIAGNO- SIS AND MANAGEMENT OF COMMON GYN- ECOLOGICAL PROBLEMS

Walter Reich, M.D., Chicago

### 4:15 PANEL DISCUSSION—PELVIC PAIN

Gerald Miller, M.D., Kansas City, *Mod-  
erator*

Walter Reich, M.D., Chicago

Alfred R. Sugg, M.D., Ada

## FOR OBSTETRICIANS

Kansas Obstetrical Society

Charles Don Shrader, M.D., Newton,  
President

### 2:00 Business Meeting

Obstetricians to Attend Program of Gen-  
eral Practitioners

## FOR ORTHOPEDISTS

Kansas Orthopedic Club

Clarence L. Francisco, M.D., Kansas City,  
President

### 2:00 SYNOVECTOMY—DEBRIDEMENT OF THE KNEE JOINT

F. Walter Carruthers, M.D., Little Rock

### 3:00 PRESENTATION OF CASE REPORTS

Members of Kansas Orthopedic Club

### 4:00 Business Meeting

## FOR PATHOLOGISTS

Kansas Society of Pathologists

Richard F. Looker, M.D., Wichita, Vice-  
President

### 4:00 Business Meeting

# Program for Monday, May 5, 1958

*Kansas National Guard Armory, 800 South 18th Street  
Two Blocks North of 18th Street Exit of Turnpike*

## FOR PEDIATRICIANS

Kansas Pediatrics Society  
Theodore E. Young, M.D., Winfield, President

**2:00 SKIN TESTS AND THEIR VALUE IN PEDIATRIC ALLERGY**

A. Matheson, M.D., Chicago

4:00 Business Meeting

## FOR RADIOLOGISTS

Kansas Radiological Society  
Sherman G. Ripley, Jr., M.D., Salina, President

**2:00 FILM READING SESSION**

Benjamin Felson, M.D., Cincinnati,  
*Moderator*

3:45 Intermission to Visit Exhibits

4:00 Business Meeting

## FOR SURGEONS

Kansas Chapter, American College of Surgeons  
Orville R. Clark, M.D., Topeka, President

**2:00 CARCINOMA OF THE BREAST**

George Crile, Jr., M.D., Cleveland

2:45 Intermission to Visit Exhibits

**3:00 RADICAL SUBTOTAL GASTRECTOMY FOR CARCINOMA OF THE STOMACH**

William H. ReMine, M.D., Rochester

## FOR UROLOGISTS

Urologists to Attend Program of General Practitioners

5:00 Business Meeting at Terrace Club

New Brotherhood Building, 8th and State Streets

6:00 Social Hour



# Program for Monday Evening, May 5, 1958

*Town House Hotel*



Drew Pearson

"The Washington Merry-Go-Round"

Drew Pearson, Washington, D. C.

6:30 Cocktail Party  
for Those At-  
tending Ban-  
quet

7:00 Annual Ban-  
quet, Kansas  
Chapter, Amer-  
ican Academy  
of General  
Practice. All  
Physicians and  
Their Wives  
Invited to At-  
tend

9:00 Business Meeting

Kansas Chapter, American Academy of  
General Practice

## Special Announcements

### Hospital Tours

Tours of new Kansas City, Kansas, hospitals and Schools of Nursing arranged on request. Apply at registration desk.

### Academy of General Practice Banquet

The Kansas Chapter of the American Academy of General Practice cordially invites all members of the Kansas Medical Society and their ladies to attend the Academy banquet on Monday evening, May 5, at the Town House Hotel. Drew Pearson, Washington, will speak on "Washington Merry-Go-Round." Cocktail hour at 6:30, banquet at 7:00. Tickets available at registration desk.

### Parking

Adequate parking available for all at the Armory, 800 South 18th Street, two blocks north of 18th Street exit of Kansas Turnpike.

# Program for Tuesday, May 6, 1958

*Kansas National Guard Armory, 800 South 18th Street  
Two Blocks North of 18th Street Exit of Turnpike*

8:30 Opening of Registration Desk

## FOURTH GENERAL SESSION

8:30 Opening of Exhibits

Charles R. Rombold, M.D., Wichita, *Presiding*

## SECOND GENERAL SESSION

Floyd C. Taggart, M.D., Topeka, *Presiding*

9:00 ABNORMAL GYNCOLOGICAL BLEEDING—  
DIAGNOSIS AND MANAGEMENT

Walter Reich, M.D., Chicago

9:45 MANAGEMENT OF PAIN IN GENERAL PRACTICE

John J. Bonica, M.D., Tacoma

10:15 Intermission to Visit Exhibits

## THIRD GENERAL SESSION

A. M. Cherner, M.D., Hays, *Presiding*

10:45 ENDOCRINE DISORDERS IN EVERYDAY PRACTICE

Arthur Grollman, M.D., Dallas

11:20 ROENTGEN FINDINGS IN SARCOID, HISTOPLASMOSIS AND WEGENER'S GRANULOMA

Benjamin Felson, M.D., Cincinnati

12:00 LUNCHEON—QUESTION AND ANSWER SESSION, GUEST SPEAKERS PARTICIPATING

Lee H. Leger, M.D., Kansas City, *Presiding*

1:30 Intermission to Visit Exhibits

2:00 PROBLEMS OF INTEREST FOR GENERAL PRACTITIONERS FROM THE STANDPOINT OF THE ORTHOPEDIC SURGEON

F. Walter Carruthers, M.D., Little Rock

2:30 A 25-YEAR EXPERIENCE WITH SPLENECTOMY—  
—HYPERSPLENIC CYTOPENIC SYNDROME

Bruce K. Wiseman, M.D., Columbus

3:00 Intermission to Visit Exhibits

3:30 PANEL DISCUSSION—RECENT ADVANCES IN  
MANAGEMENT OF DISORDERS OF THE  
STOMACH AND DUODENUM

Arthur P. Klotz, M.D., Kansas City,  
*Moderator*

Benjamin Felson, M.D., Cincinnati

Arthur Grollman, M.D., Dallas

A. Matheson, M.D., Chicago

William H. ReMine, M.D., Rochester

Bruce K. Wiseman, M.D., Columbus

# Program for Tuesday Evening, May 6, 1958

*Town House Hotel*

5:00 Cocktail Party  
Given by University of Kansas Medical  
Alumni Association

7:00 Annual Banquet, Kansas Medical Society  
Music, Entertainment, Dance

# Program for Wednesday Morning May 7, 1958

*Junior Ballroom, Town House Hotel*

8:00 Movie—"The Medical Witness"

Members of Kansas Bar Association  
Will Be Guests for This Session

8:30 Movie—"The Doctor Defendant"

9:00 PANEL DISCUSSION—MEDICOLEGAL PROBLEMS

Thomas P. Butcher, M.D., Emporia,  
*Moderator*

Murray C. Eddy, M.D., Hays

Ford Harbaugh, LL.B., Wellington

Charles E. Henshall, LL.B., Chanute

Edward J. Ryan, M.D., Emporia

11:00 House of Delegates Meeting

12:00 House of Delegates Luncheon



# Program for Wednesday, May 7, 1958

## *Events for Golfers and Marksmen*

11:00 Tee Off for Golf Tournament  
Victory Hills Golf and Country Club  
71st and Parallel  
Go North on 18th Street to Parallel  
(two miles from the Armory), then  
West to 71st Street.

11:00 Trap Shoot  
Kansas City, Kansas, Police Range  
7th and Greystone Heights  
(Go South on 7th Street to South End  
of Kaw River Bridge, then East)

7:00 Sportsmen's Banquet for Members of Kansas Medical Society and Kansas Bar Association  
Victory Hills Golf and Country Club  
71st and Parallel  
Go North on 18th Street to Parallel  
(two miles from the Armory), then  
West to 71st Street.  
Awarding of Prizes  
Two One-Act Plays by Committee on Allied Groups  
"Baa, Baa, Blackstone"  
"Nobody in Here But Us Adrenals"

## Technical Exhibits

1. E. R. Squibb and Sons
2. Cole Chemical Company
3. Greb X-ray Company
4. W. B. Saunders Company
5. Holland-Rantos Company, Inc.
6. and 7. Munns Medical Supply Company
8. Ortho Pharmaceutical Corporation
9. Schering Corporation
10. Sandoz Pharmaceuticals
11. Commercial Insurance Company
12. Coca-Cola Company
13. General Electric X-ray
14. Eli Lilly and Company
15. Merck, Sharp and Dohme
16. Goetze Niemer Company
17. S. E. Massengill Company
18. Wyeth Laboratories
19. Mead Johnson and Company
20. Parke, Davis and Company
21. Quinton-Duffens Optical Company
22. Encyclopedia Americana
23. Medical Protective Company
24. Mid-West Surgical Company
25. Pet Milk Company
26. Similac
27. Ciba Pharmaceutical Products
28. Lederle Laboratories
29. A. H. Robins Company, Inc.
30. Coufal-Keleket X-ray Company
31. Abbott Laboratories
32. Burroughs Wellcome and Company
33. Washington National Insurance Company
34. and 35. Metabol'aid
36. American United Life Insurance Company
37. Doho Chemical-Mallon Corporation
38. Carroll Dunham Smith Pharmacal Company
39. G. D. Searle and Company
40. Fleet
42. A. S. Aloe Company
43. Zenith Hearing Aid
44. American Optical Company
45. Wm. S. Merrell Company
46. U. S. Vitamin Corporation
47. Sealy Mattress Company
48. Medco Products Company
52. United Medical Equipment Company
53. Winthrop Laboratories
54. Audio-Digest Foundation
61. Purdue Frederick Company

# Woman's Auxiliary to the Kansas Medical Society

*May 5, 6, 7, 1958, Kansas City, Kansas*

## ***Monday, May 5***

9:00-4:00 Registration, Town House Hotel, 7th  
and State Avenue

10:00 Pre-Convention Board of Directors Meet-  
ing, Town House Hotel

12:00 Past State Presidents' Luncheon, Mrs. John  
A. Billingsley, 2024 Washington Boule-  
vard.

2:00-4:00 Welcoming Tea—Honoring State Of-  
ficers, Mrs. Phillip C. Nohe, 325 North  
29th Street

6:30 General Practitioners Banquet, Speaker—  
Drew Pearson, Town House Hotel  
*All doctors and wives are urged to attend*

5:00-7:00 Cocktail Hour—Sponsored by the  
University of Kansas Medical Alumni  
Assn.

President's Ball, Town House Hotel, 7th and  
State Avenue

## ***Wednesday, May 7***

9:00-12:00 Registration, Town House Hotel,  
7th and State Avenue

9:00-10:30 Post-Convention Board of Directors  
Meeting—Terrace Club, 8th and State  
Avenue

11:00 Brunch, Terrace Club, 8th and State Ave-  
nue

Medico-Legal Panel

The Kansas Bar Association will be the  
guests of the Kansas Medical Society on  
Wednesday.

## ***Tuesday, May 6***

9:00-4:00 Registration, Town House Hotel

9:00 General Session, First Presbyterian  
Church, 40th and Victory Drive

1:00 Luncheon—Honoring Special Guests, First  
Presbyterian Church, 40th and Victory  
Drive

Program—FASHIONS—"Something Old,  
Something New."

# Kansas Medical Assistants' Society

*18th Annual Meeting, May 4 and 5, 1958*  
*Town House Hotel, Kansas City*

## *Friday Evening, May 2*

9:00-11:00 Open House

## *Saturday, May 3*

9:00 Registration and Coffee

9:00 Executive Board Meeting

12:00 President's Luncheon

1:30 Call to Order

Miss Hope Finley, Hutchinson, President, Kansas Medical Assistants' Society

1:35 ADDRESS OF WELCOME

Barrett A. Nelson, M.D., Manhattan, President, Kansas Medical Society

1:45 RESPONSE

William F. Roth, Jr., M.D., Kansas City President, Wyandotte County Medical Society

2:00 CAREER OPPORTUNITIES IN MENTAL HEALTH WORK

William F. Roth, Jr., M.D., Chairman, Department of Psychiatry, University of Kansas School of Medicine

2:45 PROBLEMS OF SPEECH AND HEARING REHABILITATION FOR CHILDREN

Miss June Miller, Educational Director, Hearing and Speech Department, University of Kansas Medical Center. Demonstration by Children from the Pre-School for the Deaf

3:30 Business Session and Election of Officers

6:30 Banquet and Entertainment

### INVOCATION

Miss Melva Harvey, Kansas City

"THE RUSSIAN RULER TOLD ME"

Mrs. Bea Johnson, Kansas City, Director of Women's Activities, KMBC-TV

## *Sunday, May 4*

9:00 Registration

9:30 CALL TO ORDER AND ANNOUNCEMENTS

Miss Hope Finley, Hutchinson

9:50 GREETINGS

Mrs. Willardean Allen, Kansas City, General Chairman of Convention and President, Wyandotte County Medical Assistants' Society

10:00 CHILD PSYCHOLOGY

Harry G. Gianakon, M.D., Director, Child Study Unit, University of Kansas Medical Center

10:30 RESEARCH ON THE HEART

E. Grey Dimond, M.D., Professor of Medicine, University of Kansas Medical Center

12:00 Luncheon and Program

### INVOCATION

Mrs. Marion Cunningham, Kansas City

### READING

Miss Carol Durham, Kansas City

### MUSIC

PACKING A BAG AND TREASURES AROUND THE WORLD

Miss Mary Gordon, Chicago, Public Relations Department, Trans World Airlines

### INSTALLATION OF OFFICERS

Miss Maxine Williams, Kansas City, Immediate Past President, American Association of Medical Assistants

3:00 Visit to Kansas Medical Society Exhibit Hall, National Guard Armory, 800 South 18th Street



# Kansas Society of Medical Technologists

*11th Annual Meeting, May 6 and 7, 1958*  
*Town House Hotel, Kansas City*

*Tuesday, May 6*

## ELECTROITROMETRIC CO<sub>2</sub> DETERMINATIONS

Russell J. Eilers, M.D., Associate in Pathology, University of Kansas Medical Center

## ELECTROCARDIOGRAPHY

Kenneth Jochim, Ph.D., Chairman of Department of Physiology, University of Kansas

## FILM, "THE HUMAN CELL AND THE CYTOTECHNOLOGIST"

## DISINFECTANTS

Lyle von Riesen, Ph.D., Assistant Professor of Microbiology, University of Kansas Medical Center

## COMPARISON OF TPI AND BFP SEROLOGIES

Lee H. Leger, M.D., Director of Clinical Laboratories, University of Kansas Medical Center

## PANEL DISCUSSION: AUTOMATION AND INSTRUMENTATION

L. A. Moriarty, M.D., Pathologist  
Harold Grady, Ph.D., Biochemist  
Sister M. Lucia, MT(ASCP), Hays  
Walter Norris, MT(ASCP), Topeka

Evening picnic courtesy of Scientific Products

*Wednesday, May 7*

## METHODS OF BLOOD VOLUME DETERMINATION

Irwin Joffe, M.D., Pathologist

## THE WEAK SUBGROUPS OF BLOOD GROUP A

Leo P. Cawley, M.D., Pathologist, Wesley Hospital, Wichita

## Business Meeting

## TOXICOLOGY IN THE GENERAL HOSPITAL LABORATORY

Angelo Lapi, M.D., Pathologist, St. Mary's Hospital, Kansas City, Missouri

## COLLAGEN DISEASES WITH EMPHASIS ON THE L. E. PHENOMENON

Marjorie Sirridge, M.D., Kansas City, Kansas

## Convention Luncheon

Detailed information available from Sister Joan of Arc

Convention Chairman, Providence Hospital  
Kansas City, Kansas

# President and President-Elect

## *Introducing the Major Officers of the Kansas Medical Society*



BARRETT A. NELSON, M.D., *President*

In listing the major contributions of the Kansas Medical Society during the first century of its existence, historians must select the creation of a department of public health, the establishment of a school of medicine, the enactment of a licensure law, and the invention of voluntary prepaid health insurance.

What sort of president was Barrett A. Nelson, M.D.? The new practice act became effective during his term of office and Blue Shield in Kansas as well as nationally will always be identified with his creative genius.

So to answer that question you could cite a great number of achievements, but it may be enough to say two of the four greatest medical events of the century are linked with his name.

THOMAS P. BUTCHER, M.D., *President-Elect*

Thomas P. Butcher, M.D., will be president during the centennial, and this choice is a most happy one. Here is an excellent example of democracy at its finest, an instance of the selection of a distinctive leader for an unusual situation.

His educational background embraced philosophy and religion before he studied medicine. This wide knowledge, coupled with a greater than average interest in people and an exceptional ability in expression, gives him a most unusual talent for the position to which his colleagues elected him. Truly the centennial will be a great occasion.



# Councilor Reports

## *Activities in the Different Geographical Districts of the State*

### FIRST DISTRICT

Doctors in the First District have shown good interest and enthusiasm during the past year. District meetings were held in October and February, the first to discuss problems of general interest and the second to survey the possibility of organizing more out-patient mental health units. Both meetings were attended by President Nelson and Oliver Ebel. They were held in Atchison's lovely new hospital (\$11¼ million, 60 added beds, plus complete geriatric unit).

Marysville recently dedicated a new community hospital (36 beds, 8 bassinets) to replace two private smaller hospitals which closed. It was built at a cost of one-half million by private gifts and Hill-Burton funds.

Leavenworth is making plans for an \$875,000 addition to Cushing Memorial Hospital. Leavenworth County has taken a step forward in public relations by establishing a Joint Radio and Press Code.

There are no serious problems relative to new licensure laws. Some counties still await a more satisfactory solution to problems of indigent medical care. So far as I know there are no communities without adequate medical care.

We will try to have a delegate from each county at the state meeting.

Emerson Yoder, M.D., *Councilor*

### SECOND DISTRICT

The Second District consists of but one county medical society, the Wyandotte County Society. There has been considerable variation in the interesting programs during the past year. Various committees have been busy preparing for the annual meeting of the Kansas Medical Society in our city this spring. We have had no particular outstanding professional problems, nor diplomatic problems, and we have not been called upon to settle any controversies.

J. Warren Manley, M.D., *Councilor*

### THIRD DISTRICT

It is my pleasure to report that there have been no problems of serious nature brought to my attention in the Third District.

I am happy to note the increasing number of doc-

tors in this northeast corner of the state, and to note how many continue to enroll in postgraduate courses at the University of Kansas Medical Center. This helps to maintain the ever increasing high standard of medical competition that is always healthy for the public.

Your councilor attended all the meetings of the Council during the past year (his freshman year) with interest, and would be happy to carry your problems to the state level, if you desire my assistance.

G. R. Maser, M.D., *Councilor*

### FOURTH DISTRICT

The various county societies in the Fourth District have been more or less active in the past year.

There is a shortage of physicians in my councilor district; however, the shortage is not an acute one. The Southeastern Kansas Medical Society has been active during the year.

The new Kansas State Tuberculosis Sanatorium has been functioning during the past year and is rendering a great service to the people in this section of the state. Through the cooperation of the University of Kansas School of Medicine and the Southeastern Kansas Tuberculosis Sanatorium, a postgraduate course has been held once a month during the winter months. It has been well attended and has been spoken well of by the physicians attending it.

Charles E. Vestle, M.D., *Councilor*

### FIFTH DISTRICT

To date no important problems of a local nature involving physicians or county societies of this district have presented themselves.

The Medicare program has been active in the areas of this district in close proximity to Fort Riley. A plan for a Fifth District meeting was outlined by your councilor for March but was abandoned due to unforeseen complications. An opinion will be requested from the societies in this district as to the advisability of holding such a meeting in the coming year.

Ralph G. Ball, M.D., *Councilor*



## SIXTH DISTRICT

The following report is a résumé of the activities of the Shawnee County Medical Society for the year, presented as a report from the Sixth District.

Regular monthly meetings have been well attended, and, in addition, we have had six scientific meetings and one medical-legal meeting.

Total membership now stands at 150 active members. We deeply regret the loss of four active members, one associate, and two emeritus.

During the last year, the Society approved the fluoridation of city water, which was finally accomplished during 1957.

Tuberculin testing was begun in January, with the Society being one of the active sponsors of this program.

The members of the Society voluntarily assessed themselves \$15 each for the American Medical Education Foundation and an additional \$5.00 for sponsoring local Science Fairs.

The Society approved and actively helped with polio inoculations for the under-20 age group and for pregnant women during May and June. In December, public clinics were held for all persons with the Society again acting as the active sponsor. A follow-up clinic was held in January. In two clinics, approximately 13,500 persons received their first, second, or third polio shot. This, in my opinion, was our greatest effort during the year.

The Society also approved the project for screening diabetes at the Kansas Free Fair, and completed statistics at this time are not completely known.

We are looking forward with great expectation and pleasure to being the host society for our 1959 centennial meeting. Considerable efforts are presently in progress so that this meeting will be appealing to all members.

James A. McClure, M.D., *Councilor*

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## SEVENTH DISTRICT

Only one problem of importance was presented in the Seventh District. This concerns the number of small county societies within the district, each such society being too small to be individually effective at maximum capability. The problem is under study at this time, and it is hoped that a cooperative solution will be forthcoming.

Otherwise, there have been no major problems or major changes. Interprofessional relations have been harmonious, and the quality of medical care is adequate. The usual active interest in postgraduate education has been manifest.

Edward J. Ryan, M.D., *Councilor*

## EIGHTH DISTRICT

The usual problems have presented themselves again in the Eighth District and again have been handled nicely at their origin. Doctors in the district have contributed liberally with their time and efforts to make the Society function well, both from a local and state level.

May I again urge you to contribute to the American Medical Education Foundation and designate the school to which you wish the contribution to go.

James E. Hill, M.D., *Councilor*

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## NINTH DISTRICT

The Ninth District has been quiet during 1957 and 1958. There have been no problems brought to the attention of this councilor. All council meetings have been attended and opinions expressed on any problems for the good of the district.

Several subjects have been discussed which should be discussed throughout the district. If any Ninth District societies wish this information on council activity to be brought to them, please correspond with the councilor.

L. S. Nelson, Jr., M.D., *Councilor*

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## TENTH DISTRICT

Improvements in the quality of and facilities for medical care in our district continue. Remodeling and building of additions to several of our hospitals, with particular emphasis on fireproof construction, this past year are accomplished, in process, or contemplated. The Auxiliary is well organized in several of our counties and has been a great help in public relations and other areas. The circuit course in Hutchinson proves of great value, and attendance has been excellent. Interest in the activities of our state Society is evident throughout the district.

H. M. Glover, M.D., *Councilor*

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## ELEVENTH DISTRICT

There have been various and sundry activities of interest to the medical profession carried out by the Sedgwick County Medical Society during the past year.

The programs of the regular meetings of the Sedgwick County Medical Society each month have been outstanding for this year, and the Program Committee deserves an expression of appreciation in this regard.

This year the Science Fair is being sponsored by

the Sedgwick County Medical Society in connection with the Professional Engineers' Society and, as of this writing, it is anticipated that there will be approximately 150 exhibits of intermediate- and high school-age youths. This is a fine public relations movement in our area.

The Midwest Cancer Conference was again held, and although there was inclement weather at the beginning of the conference, a good attendance was had and this is becoming a fine tradition in Wichita. We hope that our colleagues will continue to support it.

One of the most interesting things that has been developed during the past year is the bi-monthly television program which has been sponsored by the local society. This has met with good response, and we have been fortunate in having the cooperation of the Kansas Medical Society and the University of Kansas Medical Center in putting on these programs.

We do want to express our appreciation to members of the Auxiliary because of the outstanding work they have done in organization and sponsorship of Future Nurses Clubs in the various high schools of our community. They have made every effort to inform these future nurses and indoctrinate them in the field which they have chosen for their careers. We also want to thank the ten doctors in our area who have given of their time to present material on Career Days in the various high schools.

It is felt that this has been a good year as far as public relations in our community are concerned, and there have been no problems of moment.

The councilor wishes to take this opportunity to thank each one who has given such fine cooperation during his period as councilor.

Norton L. Francis, M.D., *Councilor*

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#### TWELFTH DISTRICT

The past year has been relatively quiet in the Twelfth District, I presume because we are being "integrated."

The AMEF contributions during the past year have fallen off from previous contributions, and it will be the aim next year to make special assessment in these counties so we can have 100 per cent contributors.

The Auxiliary of the Tri-County Medical Society is becoming more and more active and the interest by the Auxiliary members seems to be increasing each month.

Albert C. Hatcher, M.D., *Councilor*

#### THIRTEENTH DISTRICT

The Thirteenth District has had no pressing problems during the past year. The medical society meetings have been well attended. The members of the district have responded well when assistance was desired in our legislative program. The recent licensing of osteopaths to practice medicine and surgery will cause us no great difficulty.

Your councilor wishes to thank the members for their high percentage of contributions to the American Medical Educational Foundation. Practically all of our members contributed to the foundation after the personal solicitation of their councilor. We believe that strenuous efforts should be made to secure nearly 100 per cent contributions in all the other districts.

Your councilor is now completing his second term. He wishes to thank all the members for their cooperation in carrying out the business of the Kansas Medical Society. It has been a real pleasure to be your representative in the council.

L. W. Reynolds, M.D., *Councilor*

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#### FOURTEENTH DISTRICT

All the component medical societies have been going along in a satisfactory manner with only minor problems which have been resolved without any major difficulty.

The coming year will necessitate considerable adjustment in our relationship with those osteopaths who have been permitted to practice medicine and surgery, but I believe the membership has been sufficiently informed of the change in relationship and the attitude of the Kansas Medical Society and that there will not be any incidents that will interfere with the best interests of the patient.

It has been gratifying to note the interest of the members of this district in the postgraduate work both at the Medical Center and at the circuit course.

Justin A. Blount, M.D., *Councilor*

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#### FIFTEENTH DISTRICT

The Iroquois Medical Society, formed a little over a year ago by doctors of Comanche, Clark, Kiowa, and Meade Counties with an associate member from Ford County, is functioning very smoothly and seems destined to be successful.

We have proceeded with a plan to hold staff meetings in rotation at our county medical society meetings. The rules, as designed for larger urban hospitals, are highly inefficient and almost absurd when applied to our small hospitals in small towns. Our

hospitals are of the 20-bed size with one or two physicians regularly in attendance. Under this new plan we all are on each staff and actually do serve to help on a call basis for surgical and emergency care and anesthesia as well as consultation. We will hold each hospital's staff meeting, with the administration officers present in rotation, taking four of the seven hospitals represented in our society area one time and the other three the next month so that each hospital has six regular meetings each year. This has been approved by the Kansas State Board of Health and is in process of consideration by other accreditation agencies interested. Many individuals of these agencies are interested in this new, more realistic approach and how it will work out. It may serve as a practical pattern for other such small hospital groups in sparsely settled areas who can add their own variations to improve the local application.

I am sorry to say nothing definite has been done in the far southwest area of the Fifteenth District. I know excellent men are still there and working hard in Seward County, Liberal, and Elkhart areas. I understand they are having regular county society meetings at noon each month. I have not been able to attend one of their meetings but will try to do so.

The Ford County Society is rolling along about as usual with the only point of interest the fact they are

taking in Gray County so that Dr. Jackman of Cimarron will have a county affiliation. This came up and was approved at the last Council meeting and certainly seems logical since he formerly practiced in Dodge City and still uses their hospitals exclusively. Gray County is outside my Council district, however.

I hope we can have a good representation from this district at the state meeting in Kansas City and believe we will from the tone of conversation at the local level. Our area is in much better condition from a business standpoint since the drouth is definitely a thing of the past. Some are even mentioning that some of this moisture would look good in August. I hope to see all my friends at the Kansas City meeting in May.

L. G. Glenn, M.D., *Councilor*

#### SEVENTEENTH DISTRICT

The Seventeenth District has adequate medical and hospital care. During the past year a hospital is being built in Lane County. St. Catherine's Hospital at Garden City has raised \$700,000 for a new addition. A new clinic building has been built at Ulysses by Dr. Brewer. Several osteopathic physicians have been licensed in Garden City and Lakin.

H. Preston Palmer, M.D., *Councilor*

## Committee Reports

### *Activities of the Different Special Groups of the State*

#### ALLIED GROUPS

Leland Speer, Kansas City, Chairman; J. J. Basham, Fort Scott; C. H. Benage, Pittsburg; H. O. Bullock, Independence; W. M. Cole, Wellington; F. B. Emery, Concordia; R. H. O'Donnell, Ellsworth; C. R. Rombold, Wichita; R. E. Stowell, Kansas City.

The committee had one meeting this year. Three items of business were discussed.

First, and most important, was our plan to offer assistance to the committee planning the state meeting. Our committee will furnish entertainment for the sportsmen's banquet to which members of the Kansas Bar Association will be invited. This will consist of a play similar to that given at the pharmacy show of last year.

Second, the committee recommended to the Council a code of cooperation between the medical and legal professions.

Third, the committee suggested to the Council that

a letter of polite recognition be written to all osteopathic physicians who passed the examination of the Healing Arts Board.

We also recommend to future committees the recognition of one of our medical allies at each state meeting in the manner in which pharmacy was recognized last year and the bar association at this year's meeting.

Leland Speer, M.D., *Chairman*

#### ANESTHESIOLOGY

P. H. Lorhan, Kansas City, Chairman; H. J. Brown, Winfield; E. D. Funk, Kansas City; D. U. Loyd, Wichita; R. S. McKee, Leavenworth; W. O. Martin, Topeka; L. J. Ruzicka, Concordia; H. F. Spencer, Emporia; W. Stephenson, Norton; F. C. Taggart, Topeka; M. M. Tinterow, Wichita.

The committee held two formal meetings during



the year. The committee concerned itself with the following: (1) the status of anesthesiology in the state of Kansas; (2) the role of anesthesiologists in a Civil Defense organization, and (3) discussion relative to Medicare, Blue Shield, and Workmen's Compensation Fee Schedules.

1. *Status of Anesthesia in Kansas.* The State Society of Anesthesiology which is a component of the national society has approximately 50 members. These individuals are doing full time anesthesia. A great number of the anesthetics in the state are given by part-time general practitioners. During the year 1957, five of these men availed themselves of the opportunity of obtaining instruction at the university.

To ascertain information relative to the practice of anesthesiology in the state a questionnaire was sent to all hospitals. From a total of 152 questionnaires sent out, replies were received from 103. The total number of operations, type of anesthetics, and data relative to postoperative morbidity may be obtained from Table I. There were 439 postoperative deaths with an overall mortality of 0.5 per cent. This compares favorably with the overall mortality rate. There were 29 deaths occurring in the operating room for a ratio of 1:2974.

Of the 29 deaths occurring in the operating room, information relative to the type of anesthetics and the patient's condition was available in only 12 cases. Information from the 12 cases revealed that cardiac resuscitation was used in only one case. It may be desirable that physicians of Kansas be taught the principles of cardiac resuscitation. This course should be sponsored by the Kansas Medical Society.

The survey further revealed that a number of hospitals kept no records relative to the anesthetic administered nor data relevant to the patients' conditions. Accreditation by the Joint Commission on Accreditation of Hospitals requires such information.

The following recommendations are offered:

A. Instruction be offered in the principles of cardiac resuscitation and sponsored by the Kansas Medical Society, such course of instruction to be presented by the Section of Anesthesiology at the University of Kansas Medical Center.

B. That physicians and hospitals of Kansas be instructed in regard to keeping adequate anesthetic records. It is further recommended that such information be presented to the Kansas Hospital Association for its action and to such other organizations of the state which are concerned with the licensing of hospitals.

C. It is further recommended that this House of Delegates instruct its president to organize a study commission empowered with the duty to request and submit to it for evaluation all pertinent data relative to deaths occurring in the operating room.

2. *Civil Defense.* In this thermonuclear era a sudden attack would cause a great number of casualties. This will tax the ingenuity of all our medical personnel to provide adequate medical care. Civil Defense plans on the local level are well organized. However, on the state level provision has not been made relative to the status of anesthesiologists.

It is therefore recommended that (1) the state medical society create the post of consultant in anesthesiology in the state Civil Defense program, and (2) he be empowered with the function of recommending standard essential equipment and minimum equipment.

### 3. *Fee Schedules:*

A. Medicare: The institution of a fee for specific operative procedures would create confusion, is illogical, and at variance with the anesthesia fee schedules of other states. It is therefore recommended that the medical society adopt a fee schedule on a time basis as follows:

First half hour or fraction thereof . . . . .	\$20.00
Third quarter of an hour or fraction . . . . .	7.50
Fourth quarter of an hour or fraction . . . . .	7.50
For each succeeding quarter of an hour or fraction thereof . . . . .	5.00

B. Blue Shield: The present position is that anesthesia fees are based on relationship to the surgical procedure. Whereas the administration of an anesthetic is not a "minor" procedure, it is therefore recommended that Blue Shield cease basing its fee schedule for anesthesia on a "major" and "minor" basis.

It is further recommended, if a unit fee schedule is adopted, that the basic unit value for anesthesia be set at a minimum of \$5.00.

C. Workmen's Compensation: Workmen's Compensation anesthesia fees are appallingly low when compared with Medicare and Blue Shield fees. The Committee on Anesthesiology and the Kansas Society of Anesthesiologists submits the following resolution to the House of Delegates for its approval and submission to the Commissioner of Workmen's Compensation of Kansas with its recommendation that such anesthesia fees be properly adjusted.

### RESOLUTION

WHEREAS, The Workmen's Compensation Commission of Kansas has in effect a fee schedule for anesthesia of \$15 for the first 30 minutes and \$5 for each additional 30 minutes, and

WHEREAS, This fee schedule, as judged by present day standards of anesthesiology is woefully inadequate, and

WHEREAS, Our services should not be rightfully sold for less than they are worth, and

TABLE 1

1. Questionnaires sent out .....	152
Questionnaires returned .....	103
Per cent returned .....	61
2. Total number of surgical procedures in 103 hospitals for year 1956—	
a. Major .....	28,362
b. Minor .....	48,554
Total .....	76,916
c. Obstetrical procedures .....	9,353
Total .....	86,269
3. Total number of anesthetics administered:	
a. Inhalation .....	36,830
b. Spinal .....	6,806
c. Local .....	12,752
d. Intravenous .....	13,750
e. Others .....	10,874
Total .....	81,012

Discrepancy in total number of anesthetics and surgical and obstetrical procedures is due to failure of a number of hospitals to submit data relative to anesthetic procedures.

Total number of hospital deaths:	439
a. 24 hours or over .....	366
b. 12 to 24 hours .....	19
c. 6 to 12 hours .....	10
d. First 6 hours .....	15
e. Deaths in surgery .....	29
Total per cent surgical mortality ..	0.5

Incidence of death occurring in surgery—29—ratio 1:2974

Principal anesthetics used with deaths:

a. Not stated .....	132
b. Inhalation (agent not stated) ..	75
c. Spinal .....	45
d. Intravenous N <sub>2</sub> O and Anectine .....	63
e. Intravenous only .....	25
f. Ether .....	15
g. Local .....	16
h. Spinal and I.V. .....	10
i. C <sub>3</sub> H <sub>6</sub> and Ether .....	7
j. C <sub>3</sub> H <sub>6</sub> .....	5
k. C <sub>3</sub> H <sub>6</sub> with I.V. .....	5
l. C <sub>3</sub> H <sub>6</sub> , I.V., Curare, Ether ..	5
m. Pentothal and Ether .....	5
n. C <sub>3</sub> H <sub>6</sub> , N <sub>2</sub> O, I.V. and Curare ..	4
o. N <sub>2</sub> O .....	3
p. N <sub>2</sub> O with Ether .....	3
q. I.V. with Curare .....	3
r. Vinethene and Ether .....	4
s. C <sub>3</sub> H <sub>6</sub> and Anectine .....	3

t. No anesthetic .....	2
u. Spinal and Local .....	1
v. Ethyl Chloride and Ether ..	2
w. Vinethene and N <sub>2</sub> O .....	1
x. Spinal, C <sub>3</sub> H <sub>6</sub> , N <sub>2</sub> O, Curare ..	1
y. Hypothermia, N <sub>2</sub> O, Curare ..	1
z. I.V., N <sub>2</sub> O, Ether .....	3

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439

Relaxant used in 80 cases

Anesthetic used in O. R. deaths:

Not stated .....	17
No anesthetic .....	1
Spinal .....	1
Pentothal and Curare .....	2
Pent., Curare, C <sub>3</sub> H <sub>6</sub> , Ether ...	1
Pent., N <sub>2</sub> O, Anectine .....	1
Pent., N <sub>2</sub> O .....	1
Hypothermia, N <sub>2</sub> O .....	1
Local .....	1
Pentothal .....	1
Cyclo and Ether .....	1
Vinethene and Ether .....	1

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29

Hospitals in Kansas—total number of beds:

Hospitals .....	152
Hospital bed totals .....	9,249

Six hospitals have a total of 2,370 beds or approximately 25 per cent of the total beds in the state.

*Size of Hospitals in State*

<i>Number of beds</i>	<i>Total</i>
Under 25 .....	53
26-50 .....	48
51-100 .....	26
101-150 .....	15
151-200 .....	4
200 plus .....	6

WHEREAS, The Kansas Society of Anesthesiologists in consultation with the Department of Defense, did negotiate a contract acceptable to both parties for providing the services of an anesthesiologist to those individuals eligible for Medicare benefits, and

WHEREAS, The fee schedule for anesthesia agreed upon by both parties was in the amount of \$20 for the first 30 minutes and \$7.50 for the second and third 15-minute periods or major fractions thereof, and then \$5.00 for each additional 15-minute period or major fraction thereof, so therefore be it

*Resolved*, That the Kansas Society of Anesthesiologists advise the Commissioner of the Workmen's Compensation Commission of Kansas of their recommendation that a fee schedule for anesthesia in the same amount as that of Medicare be adopted by the

Workmen's Compensation Commission of Kansas and further that it be

*Resolved*, That copies of this resolution be sent to the headquarters of the Kansas Medical Society.

Paul H. Lorhan, M.D., *Chairman*

#### AUXILIARY

H. S. Blake, Topeka, Chairman; L. Cohen, Topeka; T. L. Foster, Halstead; L. G. Graves, St. John; E. M. Harms, Wichita; L. S. Nelson, Jr., Salina; R. E. Pfuetze, Topeka; L. R. Pyle, Topeka; C. L. Young, Kansas City.

This has been a year of betterment of the organizational structure of the Auxiliary with particular references to its functions. The fall conference was divided into two sections; the Board of Directors meeting and a School of Instruction. The latter was designed to assist county presidents with their programming and to provide and exchange information. Mrs. Paul Craig, national president, addressed this meeting—a first for a fall conference.

*The Kansas Medical Auxiliary News* was published ten times this year, and in addition three mailings designed by the Woman's Auxiliary to the A.M.A. to increase the knowledge of auxiliary work were forwarded to the county presidents.

The Auxiliary was represented in the Governor's Traffic Safety Committee, the Kansas Civil Defense Committee, the Kansas Council of Women, at a meeting to consider the proposal to establish a Kansas School Health Council, and at the regional meeting of the President's Committee for Traffic Safety in Chicago.

They continued their efforts in behalf of the A.M.E.F., the Memorial Loan Fund for Nurses, Civil Defense, safety and rehabilitation programs, nurse recruitment, mental health, and the subscription program of *Today's Health*.

These things are impressive and clearly indicate how much we should be appreciative of the Auxiliary. They have gone this far with very little assistance from us, and their capacity of accomplishment could be infinitely greater with the active help of the societies. Certainly both the county societies and the auxiliaries would benefit by a joint business session held at least once yearly.

In these days of business vertigo, further recession may well spark a flame for extension of federal medicine, and if the intra-congressional demand for Social Security legislation, such as the Forand Bill, increases, then we doctors will need all the support those wonderful gals of ours can muster.

The Auxiliary's performance under the astute leadership of Mrs. Louis Cohen has been tremendous. They merit our recognition and deserve our help.

Henry S. Blake, M. D., *Chairman*

#### BLUE SHIELD RELATIONS

D. G. Laury, Ottawa, Chairman; A. W. Beahm, Great Bend; P. L. Beiderwell, Belleville; M. A. Brewer, Ulysses; E. W. Christmann, Wamego; J. H. Coffman, Oberlin; J. A. Dunagin, Topeka; W. A. Grosjean, Winfield; P. E. Hiebert, Kansas City; Norman E. Hull, Hays; P. Irby, Fort Scott; J. L. McGovern, Wellington; J. H. McNickle, Ashland; J. L. Morgan, Emporia; R. T. Nichols, Hiawatha; H. R. Schmidt, Newton; C. M. White, Wichita.

Your Committee on Blue Shield Relations held two meetings during the past year. In addition, each member of the committee held a district meeting, making 19 separate discussions on problems pertaining to Blue Shield.

At each session the proposed Blue Shield comprehensive contract was presented and discussed, along with other Blue Shield matters.

At the first meeting in September the committee passed the following resolution with regard to its pattern of operation:

WHEREAS, There has been apparent misunderstanding as to the structure of the Blue Shield Board and in particular the election of Board members, and

WHEREAS, This committee feels its responsibility to keep the profession informed on Blue Shield, therefore be it

*Resolved*, That the following procedure be adopted by this committee:

1. Each member of the committee will contact the president of each county society in his district and request that the president immediately appoint or have elected a physician to a District Relations Committee.

2. By October 5 each member of this committee will in writing submit to the chairman the names of the physicians on his District Relations Committee.

3. Each member of the committee will call a meeting of his District Committee for the purpose of nominating a Blue Shield Board member for a period of three years, should an election be necessary in his district. In addition, the purpose should be to inform physicians on all matters pertaining to Blue Shield with the request that each member be prepared to present pertinent information on Blue Shield to his local society.

4. Each committee member will expect the Blue Shield staff to cooperate in setting up these meetings and to be present to help carry on the meetings.

At the second meeting the committee unanimously adopted the following resolution for presentation to the House of Delegates:

WHEREAS, The Blue Shield Board has spent considerable time exploring the field of comprehensive insurance, and

WHEREAS, The Blue Shield Board requested a recommendation from this committee as to initiating a program of comprehensive coverage, therefore be it



*Resolved*, That the committee recommends to the House of Delegates of the Kansas Medical Society that the program be implemented upon the basis on which it was explained at district relations meetings and before this committee; and be it further

*Resolved*, That the chairman of the committee outline the program in detail for the members of the Kansas Medical Society as well as a follow-up education program for the members of the House of Delegates.

Since an explanation of the committee action with reference to the resolution above would be lengthy, your chairman will submit a supplementary report to the House of Delegates in May, 1958.

D. G. Laury, M.D., *Chairman*

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#### CENTENNIAL

C. S. Joss, Topeka, Chairman; F. T. Collins, Topeka; H. L. Hiebert, Topeka; W. M. Mills, Topeka; V. R. Moorman, Hutchinson; G. R. Peters, Kansas City; J. A. Segerson, Topeka; B. E. Stofer, Wichita; W. C. Wescoe, Kansas City.

The committee considered many possible subjects, among which the following are recommended to the House of Delegates as a tentative program for commemorating the centennial of the Kansas Medical Society. If the House of Delegates will endorse this framework, the committee will then immediately proceed with details.

The theme for the centennial shall be

#### MEDICAL FRONTIERS

The actual anniversary date is

February 10, 1959

The commemoration shall extend from

January 1 to May 6, 1959

This committee will prepare material as suggested guides to assist county societies in participating locally. It is urged that each county Society—

1. Hold at least one public meeting on the subject of progress in medicine.
2. Perform a well publicized free public service in commemoration of this occasion, as for example, an immunization, a mass diagnostic procedure, or some suitable contribution to the people by organized medicine.
3. Produce a program on health in every school within its area.
4. Hold a Business-Education day.

The committee shall endeavor to have the governor mark the week of February 8-14, 1959, as Medical Frontiers Week.

An effort shall be made to have the Kansas legislature recognize the anniversary on Tuesday, February 10, 1959.

An attempt shall be made to have the mayor of

each city issue a proclamation in honor of the local medical profession and its efforts toward the improvement of health.

We shall request allied professions to join the Kansas Medical Society in some appropriate recognition of this event.

We shall request lay health associations to use the centennial as their theme for public information during that period. It is suggested they might contrast 100 years ago with today.

The National Rural Health Conference will be held at Wichita, March 5-7, 1959. The theme is expected to be Medical Frontiers, and much of this conference will be devoted to the story of progress in medicine.

The History Committee is publishing *A Century of Medicine in Kansas*, to be ready for distribution by May, 1959. It is recommended that each member of the Kansas Medical Society be assessed \$5.00 for which he will receive a copy of this book. This will also provide for free distribution to libraries and to selected schools in the state.

We recommend that a Kansas physician be nominated to the American Medical Association for the national award of General Practitioner of the Year so that Kansas may be further recognized in 1959.

We shall give to the newspapers of Kansas a series of articles on the history of medicine in this state to be carried, perhaps daily, through the month of February. Material will be taken from the forthcoming book.

We shall prepare, through the Committee on Public Relations, a series of radio and television productions on pioneer medicine in contrast with today.

We shall attempt to interest national television shows which feature pioneer doctors to write this event into their scripts, as, for example, some pioneer doctor could be interested in the organization of the Kansas Medical Society, etc.

We shall attempt to interest the Hallmark Hall of Fame TV show, which is produced by a graduate of the University of Kansas, to present the life of a pioneer Kansas doctor such as Samuel J. Crumbine, M.D., for example.

We shall ask the University of Kansas School of Medicine for some special participation to commemorate this occasion.

We shall ask the Kansas State Board of Health to assist in this celebration by planning some event as a commemoration of progress in preventive medicine during the last 100 years.

We shall request the Auxiliary to the Kansas Medical Society to plan a series of events to aid in the commemoration of this anniversary.

A Hall of Health is planned for the Topeka Fairgrounds as a public exhibition to open two weeks before the annual session and continue through the

state meeting. It is hoped that this will be of interest to students from all over Kansas and that a local physician may accompany each school group on such a tour.

Science Fairs will also be conducted in numerous areas of the state. The winners in each district will be invited to exhibit in Topeka during the annual session.

The 100th annual session will be the culmination of the centennial and the closing event of the celebration.

1. It will be held at the Fairgrounds in Topeka.

2. The dates are Sunday, May 3, to Wednesday, May 6, 1959.

3. The scientific program will be entitled Medical Frontiers and will deal with the future of medical research and practice. The scientific program will begin on Monday morning and close on Wednesday noon.

4. There will be one large public meeting with some outstanding speaker either at the auditorium or possibly at the fairgrounds stadium.

This committee requests permission to add others to its membership in an endeavor to carry out its duties and will welcome any new ideas for additional events that might commemorate this occasion.

Charles S. Joss, M.D., *Chairman*

#### CHILD WELFARE

D. R. Davis, Emporia, Chairman; M. J. Blood, Wichita; M. S. Boyden, Lawrence; W. H. Crouch, Topeka; R. C. Fairchild, Mission; F. A. Gans, Salina; T. C. Hurst, Wichita; H. P. Jubelt, Manhattan; M. E. Lindley, Wichita; W. F. McGuire, Wichita; Earl A. Martin, Parsons; T. E. Young, Winfield.

This committee met in Emporia three times during the year. As before, for purposes of continuity of endeavors, the chairmen of the various committees of the state chapter of the American Academy of Pediatrics met with us in a consultatory status.

Considerable material has been made available which can be used for a child welfare page in the JOURNAL. Dr. T. C. Hurst of Wichita, assisted by Dr. Mary Blood of Wichita and Dr. F. A. Gans of Salina, plans for this to be a regular feature in the JOURNAL.

Dr. Mary S. Boyden of Lawrence and her Committee on Mentally and Physically Handicapped Children have been visiting state institutions at Parsons and Winfield. Their findings have been informative to our committee.

Dr. William H. Crouch, Topeka, has been a most active committee chairman with particular interest in the fields of perinatal mortality and poison control centers. He established an active poison control

center at Stormont-Vail Hospital in Topeka. When you are in Topeka, it might be of interest to inspect this center and see if it would be feasible elsewhere.

The Child Welfare Committee is endeavoring to study various facets of child welfare problems, hoping to come up with recommendations to the Kansas Medical Society that may be of real value. The members act as a clearing house for ideas discussed in the Kansas State Pediatric Society as well as by committee members of the Kansas Chapter of the American Academy of Pediatrics.

Dr. Ted Young of Winfield, Dr. William H. Crouch of Topeka, and Dr. H. P. Jubelt of Manhattan have ready for publication a booklet for guidance of newborn care. This is the culmination of a three-year study and represents much work on the part of these men. It will soon be available for hospital nurseries throughout the state.

D. R. Davis, M.D., *Chairman*

#### CONSERVATION OF EYESIGHT

L. L. Calkins, Kansas City, Chairman; B. J. Ashley, Topeka; F. T. Cultron, Salina; J. E. Hill, Arkansas City; D. O. Howard, Wichita; M. S. Lake, Salina; D. T. Loy, Great Bend; H. E. Morgan, Newton; W. M. Scales, Hutchinson; D. P. Trimble, Emporia; D. D. Vermillion, Goodland.

The Committee on Conservation of Eyesight met once during the year.

After appropriate discussion the committee unanimously approved a recommendation that, as a matter of public health, the visual acuity of school children should be taken at the time of entry into the first grade, using a standard illiterate Snellen type test chart, and subsequently upon entry into the fourth and ninth grades with a standard Snellen test chart.

This examination is simple enough that school teachers and nurses can properly administer it. Those having substantially reduced visual acuity should be referred to their medical doctor for evaluation. Other types of visual testing on a routine basis were discouraged since they are more diverse, more difficult to understand, and statistically fail to give sufficiently greater amounts of information to be of value in survey series. They are also much less reproducible.

The committee went on record as commending Dr. Karl Stock, the state supervising ophthalmologist, for his past service to the State Department of Social Welfare, Services for the Blind, and to the citizens of the state of Kansas. They asked that he continue in this capacity if he could possibly do so.

Because of the obvious intent of certain proposed state and national legislation supported by organized optometry to limit the type of care of diseases of the

eye and to restrict the practice of refraction of the eye, an integral part of an ophthalmological examination, to optometry alone, physicians of medicine are cautioned to respect the recommendations of the American Medical Association and the feeling of this committee that it is not ethical or wise to associate in practice with these non-medical practitioners.

An optometrist is a person who has met certain legal and educational requirements and is licensed to practice optometry. He is not a physician or doctor of medicine. The optometrist measures the focus of the eye for glasses. He is not qualified or permitted to use drugs for these tests or other purposes and often desires association with a medical doctor such that certain of these limitations may be removed by having a protective cover of his colleague's medical license. He is not qualified or permitted to treat ocular disease. He may supply glasses on his own prescription. By law he is a limited practitioner and, as such, performs a useful service in many communities where these limitations are observed.

The plans for programs for the 1958 Kansas Medical Society meeting of the section of ophthalmology were outlined and the overall plans for the centennial meeting in 1959 in Topeka were set up to conform to the general theme of the meeting "Medical Horizons."

Larry L. Calkins, M.D., *Chairman*

#### CONSERVATION OF HEARING AND SPEECH

R. Montgomery-Short, Halstead, Chairman; C. W. Armstrong, Salina; J. A. Budetti, Wichita; C. L. Gray, Wichita; E. E. Miller, Pittsburg; V. R. Moorman, Hutchinson; W. D. Pitman, Pratt; R. R. Preston, Topeka; G. O. Proud, Kansas City; R. E. Riederer, Olathe.

One meeting was held during the past year.

In response to a request from the Committee on School Health, the Committee on Conservation of Hearing and Speech discussed methods for mass testing hearing acuity in school children and established the following principles:

1. The proper use of a multiple audiometer is an economical and may be a reasonably efficient means of rapidly determining defective hearing in children. The voice whisper test has already been demonstrated at home through the use of the radio, television, etc. One physician stated that he preferred the worst audiometer to the best watch or whisper.

2. There are a number of audiometers that will cost in the vicinity of \$200 to \$400. It should be remembered, however, that this is a piece of scientific equipment that can lead to gross errors unless it is properly calibrated. This must be done not less than once each year. These machines have ten hearing

phones which enable the test to be given to ten students at a time.

3. The test should be given under conditions that provide the least possible distractions—if possible outside the main building.

4. Approval of the local medical profession should be obtained. This implies the necessity for cooperation from the physician, the school, and the parent before the test can be of value. The medical profession should help in the planning to determine at what level a marginal case should be referred to a physician, how referrals should be made, and how reports can be obtained from the physician.

5. Mass audiometer testing is not practical below the second grade. Below this level, testing should be on an individual basis and then only by a skilled person.

6. These tests are today given by school nurses, speech therapists, and others. The committee recommended that they, together with a committee from the Department of Education, meet jointly to decide standards of competency for the giving of audiometer tests and that eventually this joint committee might conduct a workshop to train such persons. In the meantime, the committee recommended that a school system, to be sure that adequate personnel was conducting the tests, might obtain prior approval for the conduction of the test either by this committee, by the Department of Public Instruction, or upon agreement of the local medical society and the local school board.

7. It is recommended that children who show a hearing loss on the first test be given a second test, an individual screening test, before being referred to a physician. Those children who exhibit a hearing loss of 20 decibels or more at any two frequencies in a given ear, together with those who exhibit a loss of more than 30 decibels at any one frequency in a given ear, are referred for medical attention. (This was officially adopted as the recommended policy for referral of a child to a physician.)

8. A child is referred to the physician through his parents. This is done after the second, the individual audiometer test, confirms the earlier findings. The local medical society shall establish policies regarding procedure, etc. The school shall add to the referral notice whatever pertinent data may be available.

9. The school shall send a note to the parents stating that a possible hearing defect was noted during a rapid school survey; that this is not a diagnosis but an indication for the necessity of an immediate examination by a competent physician. A return card to be signed by the parents might acknowledge receipt of the message, give the name of the doctor to whom the child will be taken, and authorize school authorities to speak with the physician when the examination has been completed.



10. The school shall follow up the case until medical care has been given.

11. The physician should advise the school of the results of his examination and advise the school, with the parents' permission, about any special effort the school should make such as a change of seats, or lip reading. Such report should also indicate the medical care given to correct the hearing problem or to adjust to it, such as a hearing aid, etc.

12. It is recommended that closer working agreements be made between the school and the medical profession and that this is a local problem that needs local solution.

13. Follow-up should be made to assess development within three months for all children whose audiometer readings showed an abnormality—unless the physician has the case under his care.

14. The OTO-CHEK, manufactured by the A. M. Brooks Co., Los Angeles, California, is a machine selling for \$75 which tests only at the 4,000 level. It could be used as a rapid initial screening test and is 98.4 per cent accurate in ruling out the normal. In large school systems, this might be useful as a preliminary test to be followed by the audiometer for those shown to have defective hearing.

The committee decided to prepare a statement outlining minimum educational requirements for persons to give hearing tests and planned as a future project the conducting of courses to train school personnel in use of the audiometer.

Plans were made for a meeting with Dr. R. L. Schiefelbusch, of the Speech Correction Department of the University of Kansas, and Mr. James McLean, of the Division of Exceptional Children, State Department of Education. The meeting will be held to discuss teaching standards.

Also planned by the committee is the compilation of data about local community resources in the field of hearing and speech.

Dr. C. W. Armstrong was named chairman of a sub-committee authorized to prepare articles on the subject of deafness in children so that publicity may be given the matter in the JOURNAL.

Another meeting of the committee will be held before the annual session of the Kansas Medical Society.

Ruth Montgomery-Short, M.D., *Chairman*

#### CONSTITUTION AND RULES

A. W. Feghtly, Wichita, Chairman; G. E. Burket, Jr., Kingman; L. G. Glenn, Protection; G. R. Hastings, Garden City; Y. E. Parkhurst, Belle Plaine; C. E. Vestle, Humboldt.

The committee has had considerable correspondence and held one meeting in February. A number of items have been presented for consideration. The

committee was pleased at reports from headquarters that progress has been made in consolidation of several small county societies into multi-county societies as has been urged by this committee for several years. We trust that more will find it to their advantage to do likewise.

Two important subjects were considered for which no amendments are offered.

a. A proposal for formation of a general state-wide Program Committee, with terms of three years, in order to facilitate early acceptance of eminent speakers and for long range plans of varieties of subjects for scientific papers, but leaving local arrangements only to the host society, as discussed in detail. Since this proposal was a radical change from the past custom and By-Laws governing annual programs, the committee requests that the proposal be referred to the Council for further consideration.

b. A proposal by the president to avoid prolonged and time-consuming series of voting when three or more nominations by Nominating Committee, or from the floor, have been made for an office; a primary on these offices should be held during the first meeting of the House of Delegates, which would eliminate all candidates except the two having the highest number of votes. Only these two would then be voted upon at the regular election time. The committee concluded that this radical and unusual procedure would not be in the best interests of the society and is unnecessary since the amendment on voting procedure adopted last year seemed to be adequate.

The following six amendments are printed for information to the membership and should be voted upon individually at the May 1958 session in Kansas City.

1. By-Laws: Chapter I. A new Section 5 shall be added:

Section 5. Emeritus Membership. Any member of this society 75 years of age or over, having been an active dues-paying member over the past ten years, and/or any active member totally disabled and unable to carry on active practice of medicine, upon recommendation of his component society and approval by the Council shall be so classified. Members so classified shall pay no dues but shall retain all the privileges of membership except the right to hold office.

COMMENT: This was requested in order to cover certain instances not properly classified as "On leave of absence." The committee recommends its ADOPTION.

2. By-Laws: Chapter XI, Section 2. Shall be amended by striking out the first 8 lines and substituting therefore the following:

Section 2. Committee Appointments. It shall be the duty of the PRESIDENT-ELECT, except as is otherwise provided in these By-Laws, to appoint a chairman and other members for each standing committee, and other temporary committees he shall deem proper, to serve during his term as president. The complete list of appointments to committees shall be available for publication and distribution to the membership immediately upon assuming office as president.

COMMENT: This has been done for the past two years. It is considered of so much value that it should be so specified in the By-Laws. The committee recommends its ADOPTION.

3. By-Laws: Chapter XI, Section 19. Executive Committee. Shall be amended in line 5, after the word "president," by the inclusion of the phrase: "regularly, and at least six times during each year."

COMMENT: Since it is impossible to determine in advance how many times or how often emergencies may arise requiring such meetings, it is thought not necessary or advisable to specify any number or definite meetings. The committee recommends that it be NOT ADOPTED.

4. By-Laws: Chapter VII, Section 2. President-Elect. Shall be amended by striking out the last five lines and substituting therefore the following:

"In case of death, resignation, or removal from office within two months of the time he should have assumed the office of president, the Council shall name two or more candidates and the election shall take place as the first order of business of the next regular session of the House of Delegates. In case of death, removal from office, or resignation within the first 10 months after his election, the Council shall name two or more candidates, one of whom shall be elected by a mail vote. Ballots shall be sent to each delegate and voting member of the House of Delegates registered at the last regular meeting. Polls shall be closed 10 days after date of mailing, and a majority of the votes received shall constitute an election."

COMMENT: Such an emergency rarely occurs, but must be provided for in ample time for the incumbent to plan his time and work for the year. The committee feels that the importance of the office commands an election rather than a designation of any officer already elected to act as replacement. The committee submits this amendment WITHOUT RECOMMENDATION.

5. By-Laws: Chapter XI, Section 26. Maternal Welfare Committee. Shall be amended as follows: Strike out the last two lines and substitute there-

fore: "A MAJORITY OF THE MEMBERS shall have served on the retiring committee."

COMMENT: The present committee requested this on the grounds that the work accomplished carried over a series of years and it is important that a majority of the personnel should be continued. The committee recommends ADOPTION.

6. By-Laws: Chapter VIII, Section 8 shall be amended by addition of the following:

"Whenever the Society is invited to name a member or a committee to represent this society for service outside the immediate jurisdiction of the Kansas Medical Society, such appointments shall be made by the Council."

COMMENT: This amendment is requested by the Council on the grounds that it is neither right nor proper that on such important appointments that neither the Executive Committee nor the president alone should carry the responsibility of appointments. The committee recommends ADOPTION.

I wish to express personal thanks to each member of my committee, to Oliver Ebel, executive secretary, and other individual officers, and members consulted about these amendments.

A. W. Fegtly, M.D., *Chairman*

#### CONTROL OF CANCER

D. C. Reed, Wichita, Chairman; J. P. Berger, Wichita; C. G. Bly, Kansas City; C. S. Brady, Atchison; T. P. Butcher, Emporia; G. L. Campbell, Arkansas City; A. M. Cherner, Hays; J. C. Dysart, Sterling; A. A. Fink, Topeka; W. A. Grosjean, Winfield; H. L. Hiebert, Topeka; J. D. Hilliard, Medicine Lodge; W. J. Kiser, Wichita; J. R. Kline, Wichita; N. C. Nash, Wichita; R. H. Riedel, Topeka; D. S. Ruhe, Kansas City; P. H. Schraer, Concordia; B. E. Stofer, Wichita; H. M. Wiley, Garden City.

This committee, in conjunction with the Medical and Scientific Committee of the Kansas Division of the American Cancer Society, has held five meetings, all of which have been attended by all the members.

Much of the combined committees' effort was directed toward formulating and "staging" the Tenth Annual Midwest Cancer Conference on March 13 and 14 in Wichita which, as in the past, was jointly sponsored by the Kansas Division of the American Cancer Society and the Kansas Medical Society with the cooperation of the Sedgwick County Medical Society. Much of the credit for the success of this particular conference is due to Dr. Newman Nash, Wichita, for his zealous effort to procure an excellent panel of speakers in the face of much adversity. Dr. Nash accepted the responsibility of program chairman for this particular conference after it was learned that Dr.



Chauncey Bly would be unable to formulate the proposed program because of accepting a teaching assignment at the University of Rochester.

Much discussion has taken place and some preliminary planning has been done to combine with possibly Oklahoma, Missouri, and Arkansas in planning an area cancer conference in the future for the purpose of attracting a greater number of physicians. A meeting was held in March with professional and lay representatives of the divisions of these various states to further explore this possibility.

On December 28, the combined committees met at the University of Kansas Medical Center for the purpose of evaluating various project requests presented within the division and to witness demonstrations of the use of television and other audio-visual teaching devices employed at the medical center. Dr. David Ruhe, a member of the committee, was responsible for making the arrangements for the meeting at the Medical Center. At this same meeting, Dr. R. H. Riedel's sub-committee previously appointed to evaluate the Hospital Cancer Program in Kansas was requested to review the present manual on Diagnostic Tumor Clinics originally published by the Kansas Medical Society. The consensus of the committees was that greater effort should be made to determine that approved Diagnostic Tumor Clinics in Kansas conform to the general provisions outlined for approval by the American College of Surgeons.

As in the past, the chairman of the committee wishes to take this opportunity of expressing his sincere appreciation for the continued loyal cooperation afforded him by the individual members of the committees who have given so unselfishly of their time.

D. Cramer Reed, M.D., *Chairman*

#### CONTROL OF TUBERCULOSIS

J. L. Morgan, Emporia, Chairman; A. L. Ashmore, Wichita; R. M. Brooker, Topeka; J. A. Butin, Chanute; R. I. Canuteson, Lawrence; C. W. Erickson, Pittsburg; M. J. FitzPatrick, Kansas City; R. A. Lawson, Chanute; G. W. Nice, Topeka; C. Pokorny, Halstead; J. W. Spearing, Columbus; C. F. Taylor, Norton; P. H. Wedin, Wichita.

The Committee on Control of Tuberculosis has been a hard working group. Following much research and spirited discussion, we have arrived at the following recommendations which we respectfully submit to the House of Delegates of the state Society:

1. That regional tuberculosis clinics be set up and staffed in so far as possible by local agencies (medical societies, health departments, and tuberculosis associations) unless these agencies ask for help from outside the area.

2. That the Kansas State Board of Health be the coordinating authority in aiding, establishing, and maintaining regional and area tuberculosis clinics.

3. That the financial support of tuberculosis clinics be shared by the area served and the State Board of Health.

4. That a patient should be referred to a tuberculosis clinic by a physician or a public health officer.

5. That a patient should, after tuberculosis clinic services or hospitalization, be referred back to the physician of his choice.

6. That the operation of the photofluorographic units of the State Board of Health be modified in the interests of maximum productivity and radiological safety as follows:

a. The age of eligibility, now 14 years, be raised to 20 years.

b. In all institutional groups (mental hospitals, penal institutions, training schools, colleges, lower schools), and in low prevalence areas, the tuberculin test be used as the first screening test with a follow-up of reactors by the mobile unit if numbers warrant or by 14 x 17 films taken by local facilities. The State Board of Health should assist in these tuberculin testing programs in lieu of the mobile x-ray service, where local services cannot provide adequate testing services.

c. In counties of high tuberculosis prevalence (approximately one-fifth of the Kansas counties) the mobile units spend more time, striving for a greater response in percentages of eligibles x-rayed.

d. In special groups such as food handlers, cosmetologists, barbers, teachers, baby sitters, medical personnel, etc. identification of the tuberculous be stressed. This can be done with the tuberculin test and a 14 x 17 x-ray of the reactors.

e. The retake program using the mobile x-ray unit be abolished, substituting for this two procedures:

i. A check of previous files to determine if there is a prior film on file which would be useful in establishing the necessity for a retake.

ii. A retake with a 14 x 17 film locally.

f. Promote the use of public health nurses in every county in Kansas to act as liaison between the suspected or known tuberculous case and the physician. (One of the weak links in the present chest survey x-ray program is that of getting the suspected case to the physician whose name he has given as his private doctor. It is not the duty of the private physician, nor does he have the time, to round up these cases for a definite diagnosis.)

7. That the State Tuberculosis Sanatorium at Norton be preserved for the purpose for which it was established, namely the treatment of tuberculosis.

8. That consultant psychiatric services to the State



Sanatorium for Tuberculosis be furnished from the Larned State Hospital as soon as possible.

The committee decided that a series of articles in the JOURNAL on currently accepted practices in the diagnosis and treatment of tuberculosis would be helpful. These have been broken down into five topics, and volunteers from the committee are already working on these articles, the first of which we plan to publish in the fall.

Two problems which this committee suggests to the group which succeeds it are:

1. A practical plan for more widespread use of the properly used tuberculin intradermal skin test.
2. The problem of obtaining anti-tuberculous drugs for the indigent patient.

John L. Morgan, M.D., *Chairman*

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#### EMERGENCY MEDICAL CARE

K. F. Bascom, Manhattan, Chairman; G. L. Ashley, Chanute; F. C. Beelman, Topeka; R. M. Brooker, Topeka; L. F. Glaser, Hutchinson; A. E. Hiebert, Wichita; H. H. Hyndman, Wichita; N. M. Jenkins, Salina; G. E. Manahan, Lawrence; R. E. Speirs, Dodge City; J. F. Thurlow, Hays; D. P. Trees, Wichita.

The work of the committee is analyzed as using two approaches to emergency medical care. One is that of planning for great emergencies from the top down. A committee meeting and discussions by phone and mail have been employed. No concrete results can be reported.

The other approach is to try to improve emergency medical care here and now at the grass roots. Following this thought, a copy of *Early Care of Acute Soft Tissue Injuries*, a book prepared by the committee on Trauma of the American College of Surgeons, has been sent to every approved hospital in Kansas handling such cases.

K. F. Bascom, M.D., *Chairman*

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#### ENDOWMENT

C. V. Black, Pratt, Chairman; E. W. Enders, Kansas City; D. C. McCarty, Medicine Lodge; D. B. McKee, Pittsburg; R. A. Nelson, Wichita; J. L. Perkins, Hutchinson; J. W. Randell, Marysville; R. Schrepfer, Kansas City.

The Endowment Committee held one meeting in Topeka in September, 1957, with four members attending. A review of progress for the year was made and methods of raising money for A.M.E.F. were discussed. Also in attendance at the meeting were Mrs. Larry VinZant, Woman's Auxiliary chairman; Mr. Irvin Youngberg and Mr. Baker of the Kansas University Endowment Association; and Dr. V. E. Wilson of the medical school.

In January your chairman attended the national committee meeting in Chicago. The following facts were obtained from this meeting: there were 496 donors from Kansas who gave \$15,127.68; there were 27 gifts by Woman's Auxiliaries for a total of \$817.50; 31 were from non-medical persons totaling \$790.00; one doctor gave \$1,000; Riley's Pharmacy in Wichita gave \$500 instead of sending Christmas gifts to doctors. There were 25 doctors who gave more than \$100. The Shawnee County Society was again 100 per cent, and several smaller counties were also 100 per cent.

There are many who are in favor of a state-wide assessment. States which are trying this are happy with it. It has been suggested that a doctor who receives referrals and wishes to do something for his colleagues, may make contributions to A.M.E.F. in their behalf; also that doctors who care for other doctors or their families and do not wish to be financially recompensed for this favor, might turn Blue Shield funds collected to A.M.E.F. or, if they do not have Blue Shield, the recipient doctor or his family might make contributions to A.M.E.F.

Cyril Black M.D., *Chairman*

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#### FEDERAL LEGISLATION

N. C. Smith, Arkansas City, Chairman; S. A. Anderson, Clay Center; R. W. Blackburn, Council Grove; R. D. Dickson, Topeka; L. A. Donnell, Wichita; A. C. Eitzen, Hillsboro; G. W. Fields, Scott City; R. G. Klein, Dodge City; G. D. Marshall, Colby; O. L. Martin, Salina; E. R. Millis, Kansas City; L. W. Reynolds, Hays; A. W. Sandidge, Mulberry; L. N. Speer, Ottawa; M. O. Steffen, Great Bend; W. O. Wallace, Atchison; S. Zweifel, Jr., Kingman.

The one major federal problem relating to health so far brought to the attention of this committee is the Forand Bill, H.R. 9467. The following material, prepared by the American Medical Association, represents the report of this committee.

Through labor's efforts, Congress will shortly consider legislation to provide socialized medicine for a segment of the population. Congressman Aime J. Forand, one of the senior members of the House Ways and Means Committee, which is assigned all legislation pertaining to the Social Security law, has introduced a bill, H. R. 9467. In a nutshell, it would call on the Social Security trust fund to pay hospital and surgical charges for 13 million persons, most of whom are over age 65.

Persistent rumors indicate public hearings will be held following the Easter recess, looking toward wholesale amendment of the Social Security program. The AFL-CIO, which induced Congressman Forand to introduce his bill, will at that time urge the graft-

ing of medical care benefits on the dollar benefit retirement Social Security program.

Under this proposal the federal government would finance the entire program through earmarked, compulsory taxes; the government would control the disbursement of all funds; the government would determine the benefits to be provided; the government would set the rates of compensation for hospitals and physicians; the government would audit the records; the government would promulgate and enforce standards of hospital and medical care. This proposal would compete with and eventually destroy the phenomenally successful private health insurance industry. It would reverse the concept of local community control and support of hospitals.

Bills similar to Mr. Forand's have been introduced in every Congress since 1952. The fact is 1958 is the first time since this legislation appeared that there have been indications of a serious attempt to have it enacted into law. The force behind this attempt comes primarily from the AFL-CIO. That organization first adopted the principle of hospital and surgical payments under the Social Security Act as one of its legislative goals in 1955. At its last convention in Atlantic City, the AFL-CIO reiterated its desire to have this legislation enacted. Moreover, we know from authoritative sources that they are not just paying lip service to this bill but are seriously working in Washington to have something done about it.

The Forand bill authorizes 60 days of *free* hospitalization or 120 days of nursing home care, less the period of hospitalization furnished the beneficiary during a 12-month period. Furnished also would be the cost of any necessary, non-elective surgery. The recipient would be free to choose his own surgeon, provided he was certified by the American Board of Surgery or was a member of the American College of Surgeons. Necessary minor or emergency surgery could be performed in a doctor's office, and under certain emergency conditions, this surgery could be performed by a general practitioner or non-certified surgeon. Oral surgery in hospitals would also be covered. Physicians and dentists would be paid on the basis of a fee schedule set by the Secretary of the Department of Health, Education and Welfare.

The 60 days of hospital care would include services, drugs, and appliances customarily furnished by the hospital, including bed and board, nursing services, laboratory services, ambulance services, and the use of operating rooms and staff services. Hospital care and nursing home care could only be received in those hospitals and nursing homes that had entered into an agreement with the government. Organizations of physicians and dentists could contract with the government under this legislation for the services of their members.

The persons who would receive these benefits would be those eligible for retirement and survivors' benefits under the Old Age and Survivors Insurance program of the Social Security Act. This would be at least 12 or 13 million persons initially.

To pay for this program, the Social Security tax base would be raised from \$4,200 to \$6,000, and the tax rate would be raised  $\frac{1}{2}$  of 1 per cent for employees and employers and  $\frac{3}{4}$  of 1 per cent for self-employed persons.

The aged are an important and growing segment of the total population. In 1900 there were about three million persons in this age group, comprising only 4.1 per cent of the population. Today, the aged number approximately 15 million and constitute 8.7 per cent of the total population. By 1975 it is estimated that this number will exceed 20 million, or 9.3 per cent of the population. Although the aged will continue to grow in numbers, it is predicted that their percentage of the general population will level off somewhere around 9 or 10 per cent.

The profession must become informed immediately concerning the nature of this legislation and the threat it poses to the private practice of medicine. It then must take effective action, together with its allies, to promote alternative, voluntary answers to whatever problems exist. The A.M.A. is geared to support these action programs and in the immediate future will present its positive program for the aged—a program that will preserve the traditional physician-patient relationship and at the same time provide a clear answer to the need.

N. C. Smith, M.D., *Chairman*

#### FEE SCHEDULES

W. J. Reals, Wichita, Chairman, Pathology; W. L. Beller, Topeka, Radiology; H. J. Brown, Winfield, Anesthesiology; J. K. L. Choy, Topeka, Urology; J. Gordon Claypool, Howard, Internal Medicine; D. R. Davis, Emporia, Pediatrics; T. L. Foster, Halstead, Psychiatry; N. L. Francis, Wichita, ENT; J. E. Hill, Arkansas City, Ophthalmology; J. A. Howell, Wellington, General Practice; G. B. Joyce, Topeka, Orthopedics; J. G. Kendrick, Wichita, Obstetrics and Gynecology; W. R. Lentz, Seneca, General Practice; C. M. Lessenden, Jr., Topeka, Dermatology; P. W. Morgan, Emporia, Internal Medicine; S. L. Vander Velde, Emporia, Surgery.

In former years this report has been headed "Blue Shield Fee Schedule"; however, this committee during 1957-58 has been called "The Committee on Fee Schedules" since its scope embraces not only Blue Shield but also Medicare and many other plans requiring submitted schedules of fees.

The committee has met on numerous occasions, the



first meeting being called on September 22, 1957. In order to expedite the work it was decided by vote at the first meeting that an Executive Sub-Committee be established to meet and consider problems and pass these on to the full fee committee for final action. The chairman of the fee committee serves as chairman of the Executive Sub-Committee with Dr. Brown, Dr. Francis, Dr. Joyce, Dr. Morgan, Dr. Lentz, and Dr. Vander Velde as members. In addition to meetings of the full committee, this Executive Sub-Committee has also met on several occasions to consider business for later deliberation by the full committee.

The Fee Schedule Committee was asked to consider fees for procedures for a new proposed comprehensive contract to be offered by Blue Cross-Blue Shield. At the first meeting of the full committee these fees were established and forwarded to the board of Blue Shield for consideration. The first meeting of the committee was honored by the presence of Dr. Barrett Nelson, president of the Kansas Medical Society, who spoke and gave many valuable suggestions. Dr. Francis Collins, president of Blue Shield, also honored the first meeting and addressed the group.

The sub-committee met in Emporia on Monday, December 2, and among other matters considered the feasibility of a relative value schedule for the state of Kansas. The principle was unanimously recommended by the Executive Sub-Committee and was forwarded to the full committee for consideration and approval. At this meeting a set of simple rules for the conduct of the sub-committee was approved, and these were recommended for permanent adoption by the committee during its life. These sub-committee rules are as follows:

1. The Committee on Fees voted that an Executive Sub-Committee be appointed to consider special problems concerning fees.
2. The general functions of the committee have been outlined and approved by the Council. For the sake of clarity the following rules will govern this sub-committee.
3. The regular committee will meet four times a year on the call of the chairman.
4. The Executive Sub-Committee will consider special problems and make recommendations to the committee either at a meeting or by mail.
5. Roberts Rules of Order will be following at all meetings.
6. All recommendations of the committee will be submitted to the proper organization or group for consideration.
7. When the sub-committee meets to discuss fees, physicians in the specialty involved will be invited to attend the meeting if they are not otherwise represented.

A meeting of the full Fee Schedule Committee was held on Sunday, January 18, at Emporia. At this meeting the sub-committee report including fee schedules and the rules for the sub-committee were approved, as also was the principle of the relative value schedule for Kansas.

A meeting of the Executive Sub-Committee on Fees was held February 11, at Emporia. Considerable discussion was held concerning relative value schedules for the state. The sub-committee will present a relative value schedule to the full committee prior to the 1958 meeting of the House of Delegates. Of necessity, this report cannot be complete since that action has not been carried out at this time. However, prior to the meeting of the House of Delegates an addendum to this report will be submitted and will be a part of the proceedings of that House of Delegates.

The staff of the executive office, Mr. Oliver Ebel and Mr. Rueben Dalbec, have helped the committee in many ways, especially in research on fees and in providing material for consideration. The committee wishes to publicly thank these gentlemen.

The following resolution is submitted for consideration of the House of Delegates:

WHEREAS, The House of Delegates of the Kansas Medical Society changed the name of this committee from Blue Shield Fee Schedule to Committee on Fee Schedules, and

WHEREAS, The Committee recognizes that much of its time and effort will be spent on Blue Shield schedules, and

WHEREAS, The Committee is not clear as to its responsibility to Blue Shield, and

WHEREAS, The Committee recognizes that it acts in an advisory capacity to the Blue Shield Board, therefore be it

*Resolved*, That the following procedure be recommended to the House of Delegates of the Kansas Medical Society, with the request that the Society submit it to the Blue Shield Board for its consideration.

1. No changes or additions to published fee schedules for Blue Shield will be made without first submitting the proposed changes to this committee.

2. No changes or additions to published fee schedules for Blue Shield will be made without first giving to this committee 30 days prior notice.

3. The Blue Shield Board will report in writing to this committee its deposition of committee recommendations.

4. When any group of physicians representing specialists, generalists, or a component county society has a complaint in regard to scheduled fees, such complaints will be filed with this committee and action will be taken at the meeting following the com-



plaint—at which time the physician (s) will be invited to appear in person if he so desires.

5. The committee will meet at least four times a year or at the call of the chairman.

The members of this committee have willingly given many hours of their time to deliberations concerning fees. The chairman would be remiss if gratitude were not publicly expressed to the committeemen for their efforts and counsel.

William J. Reals, M.D., *Chairman*

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#### GENERAL PRACTICE AWARD

G. L. Thorpe, Wichita, Chairman; C. W. Bowen, Topeka; L. G. Glenn, Protection; A. C. Harms, Kansas City; L. E. Leigh, Overland Park; C. A. Newman, Topeka.

At the mid-winter meeting of the American Medical Association there is annually selected the General Practitioner of the Year. This selection is made from nominations submitted by the state societies. During the years this custom has been in effect, Kansas has not submitted a nomination.

As a feature of the centennial of the Kansas Medical Society, it is hoped that a Kansas physician may be given this national honor. Your committee has seriously considered a number of physicians who have rendered outstanding service to the profession in the field of general practice. Your committee has also twice requested nominations from the component societies in Kansas.

The committee unanimously has selected the name of Conrad M. Barnes, M.D., Seneca, and respectfully requests endorsement by the House of Delegates for this selection.

The committee further requests the authorization of the expenditure of limited funds to prepare a biography of Dr. Barnes for the Board of Trustees which will call to their attention some of his accomplishments. The committee will also appreciate suggestions from any member on ways in which this nomination might more effectively be presented to the American Medical Association.

G. L. Thorpe, M.D., *Chairman*

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#### GERONTOLOGY

E. G. Dimond, Kansas City, Chairman; J. O. Austin, Garden City; L. J. Beyer, Lyons; J. M. Catlett, Emporia; T. Dechairo, Westmoreland; D. M. Diefendorf, Waterville; F. E. Dillenbeck, El Dorado; G. M. Edmonds, Horton; V. L. Jackson, Altamont; A. B. McConnell, Burlington; Ronald McCoy, Coldwater; J. J. Marchbanks, Oakley; T. V. Oltman, Riley; E. S. Rich, Hutchinson; H. L. Songer, Lincoln; C. E. Stevenson, Neodesha; G. A. Surface, Ellis.

The Committee on Gerontology held a round-table discussion in which each member present expressed his views on the problems in the field of gerontology. It was agreed that the committee would give particular attention to the opportunities and problems presented by

- A. Privately operated nursing homes
- B. Civic sponsored nursing homes
- C. Possibility of extension of Blue Shield protection
- D. An analysis of state regulations on nursing homes
- E. Postgraduate instruction in the field of gerontology.

In addition, it was decided that Dr. Cosins of Oxford, England, would be invited to visit with the committee at the time of its next meeting. A large volume of literature has been accumulated and is being circulated to the members of the committee.

E. G. Dimond, M.D., *Chairman*

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#### HISTORY

W. M. Mills, Topeka, Chairman; J. F. Barr, Ottawa; H. C. Clark, Wichita; R. R. Melton, Marion; C. C. Nesselrode, Kansas City; R. T. Nichols, Hiawatha; R. A. Schwegler, Lawrence; G. S. Voorhees, Leavenworth.

After the initial planning was completed several years ago and the history project became a reality, the work done by this committee has since largely been advisory. That will continue to be its chief function during the course of this next year while the book is being written and edited.

The graduate department of history at the University of Kansas has completed a monumental amount of research. Not less than two daily newspapers of Kansas which have been in existence for 100 years have been read entirely for the complete century. Innumerable others have been examined for briefer periods.

Professional journals have been thoroughly studied, as have the records of this Society and of hospitals and of other groups. Numerous persons have been interviewed for recollections, and the records of the School of Medicine, of the Board of Health, and even of the American Medical Association have been utilized for information.

With this available, Dr. Tom Bonner, professor of Omaha University, is now writing a book entitled *A Century of Medicine in Kansas*. Your committee is working with him and will read the entire manuscript before publication.

It should be noted that Dr. Bonner is the author and that he is writing a history of medicine as he sees it. This may not be completely flattering, just as the

story has its uncomplimentary moments. Nor does your committee want a whitewashed account.

The Committee on History believes it can assure that a relatively accurate book will be written but believes it will be a historical record with no attempt being made to flatter or condemn anybody.

It has previously been determined by this body that the Society will spend \$900 a year for three years in the preparation of this book. It has also been determined by this body that a special assessment be made next year whereby each member will purchase and receive a copy.

Your committee believes this book will be useful to libraries and to schools as source material in the field of health care. It will probably cost something less than \$5.00 a copy.

It is recommended that an assessment of \$5.00 be made in 1959 for each dues-paying member for which each shall be given a book. It is recommended that \$5.00 shall be paid by each non-dues-paying member if he wishes to receive the book. It is further recommended that whatever remains from this income, together with a contribution from the Society, shall be used to purchase additional copies which shall be given to selected libraries and schools in this state.

In the meantime, this committee continues to request that memoirs of pioneer doctors be sent in and that the records of any medical institution or event of interest to the author be sent to the Society. To be of value to this project it must be accomplished before September.

W. M. Mills, M.D., *Chairman*

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#### HOSPITALS

E. R. Gelvin, Concordia, Chairman; L. E. Beal, Fredonia; E. Beebe, Olathe; W. M. Campion, Liberal; M. D. Christensen, Kiowa; E. T. Gertson, Atwood; G. F. Gsell, Wichita; L. S. Morgan, Wichita; A. J. Rettenmaier, Kansas City; D. J. Smith, Overland Park; R. E. White, Garnett.

The committee was unable to complete the work it had outlined for the year and urgently recommends the effort to be continued by next year's committee and that as rapidly as possible the suggested changes be made for the protection of the public.

This committee is of the opinion that the practice of medicine in certain small hospitals of this state is not sufficiently supervised to guarantee adequate care. This is believed to be especially true in the field of surgery.

This committee believes, for example, that it is unwise to begin major surgery unless there is more than one physician available. It is also for the protection of the public that a tissue committee should

be active and that many others of the generally accepted standards commonly found in the larger hospitals should somehow be implemented in smaller hospitals also.

The committee wishes to pay special tribute to the Iroquois Medical Society for its pioneering effort to raise standards in small hospitals. It could well be that other hospital districts are attempting to do the same thing.

To determine hospital practices in the state of Kansas, this committee is preparing a questionnaire to be sent out with the cooperation of the Kansas Hospital Association to every hospital in the state. The questionnaire, already completed, is designed to obtain information on the type of practice permitted within a hospital.

The fact that the questionnaire has not been sent leaves this committee with only general impressions and not reliable statistical data. On the basis of these impressions, expected to be confirmed when the questionnaire results are tabulated, your committee proposes that a Joint Voluntary Hospital Council be organized and that this consist of members from at least the hospital association, the state board of health, and the medical society, with the addition of others if desired. It is also recommended that this council set up voluntary standards for hospitals to follow in this state and that these standards be made realistic for the smallest hospital but also designed to protect the patient.

Therefore, at this time, since the project is not completed, your committee asks the House of Delegates to endorse the preparation and sending out of a questionnaire to discover what is currently the situation with reference to prevalent practices in Kansas hospitals. It is then requested that this committee be authorized to prepare, on the basis of its findings, a set of standards that hospitals might voluntarily adopt and that preliminary steps be taken to form a Joint Voluntary Hospital Council for Kansas.

E. R. Gelvin, M.D., *Chairman*

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#### INDUSTRIAL MEDICINE

I. W. Cain, Kansas City, Chairman; V. D. Alquist, Baxter Springs; W. L. Anderson, Atchison; E. S. Brinton, Wichita; G. S. Hopkins, Topeka; C. A. Isaac,

There have been no meetings of the Committee on Industrial Medicine. No particular problems have come to our attention.

Ivan W. Cain, M.D., *Chairman*

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#### LEGAL MEDICINE

L. R. Pyle, Topeka, Chairman; T. P. Butcher, Emporia; N. L. Francis, Wichita; G. F. Gsell, Wichita;

J. L. Lattimore, Topeka; J. A. McClure, Topeka; J. W. Manley, Kansas City; N. E. Melencamp, Dodge City.

Following the passage of the Basic Science and the Healing Arts Acts, the work of this committee has been largely completed. It was the opinion of this committee that implementing the acts should be the responsibility of persons officially appointed to the respective boards, and since this committee was not invited to assist in that effort, assistance was not volunteered.

It was the studied opinion of this committee that since the interim session of the Kansas legislature, limited by statute to matters of purely fiscal import, was not expected to consider any measures relating to health, the Society would not attempt to visit with members of the Kansas legislature.

It is recommended, however, that when a special session is held, and if a serious proposal is made to curtail the activities of essential state-operated health services, or if a discriminatory tax on health care is being considered for adoption, the medical profession should then take an active interest in the outcome of such legislation.

A portion of the committee who had previously worked with a committee of the Kansas Osteopathic Association met with the same group to discuss some of the problems that have arisen since the Healing Arts Act became law.

Lucien R. Pyle, M.D., *Chairman*

#### MATERNAL WELFARE

R. G. Heasty, Manhattan, Chairman; A. H. Baum, Dodge City; E. X. Crowley, Wichita; H. M. Floersch, Kansas City; H. M. Foster, Hays; R. L. Hermes, Lawrence; J. G. Kendrick, Wichita; G. M. Martin, Topeka; W. R. Roy, Topeka; C. E. Shrader, Newton; R. Sohlberg, Jr., McPherson.

The Maternal Welfare Committee has continued its main function of investigating maternal deaths in several meetings this past year. Much effort was given to completing a backlog of cases in which the investigations had not been completed. In order to do this, more meetings were held and the investigators were asked to make more investigations than in any previous year. Because of the length of the questionnaire and the time required for an investigation, some consideration was given to shortening the questionnaires, but it was generally felt that they should continue as they are.

One of the meetings was devoted in part to discussion of a report on a conference on radiation hazards of x-rays for mothers and children, attended by a member of our committee, Dr. Martin. We felt that there was still too much confusion and disagreement

among the experts for us to draw any conclusion that might be suggested to physicians doing obstetrics in Kansas.

The committee has long felt that the great amount of work entailed in making the investigations, summarizing the reports, discussion, and assignment of responsibility by the committee was in large part wasted unless it could have some educational value to members of the Kansas Medical Society. Therefore, our main objective this year was to begin the publication of our maternal death studies in the JOURNAL. Considerable discussion concerning the manner in which these were to be presented took place, and it was finally decided to present one case per month followed by comments of the committee. After the legal aspect was cleared by the attorney of the Kansas Medical Society, these reports were started in the January issue of the JOURNAL. To those of us on the committee who, for the last few years, have worked to get publication of these reports started, it has meant a real achievement.

Since the duties of the committee end at the time of the meeting of the Kansas Medical Society in May and the new committee is not announced until a later issue of the JOURNAL, it leaves a considerable time in which no official action can be taken by the committee. We therefore recommend that the committee's duties run for 12 months beginning September 1. We also suggest that at least two-thirds of the retiring committee be appointed to the new committee each year to afford more continuity in its work.

The committee wishes to thank the investigators not on the committee for their labor in obtaining some of the detailed reports and Dr. David Gray who edits our reports for the JOURNAL.

Robert G. Heasty, M.D., *Chairman*

#### MEDICAL ASSISTANTS

A. C. Armitage, Hutchinson, Chairman; L. G. Allen, Jr., Kansas City; M. C. Eddy, Hays; T. D. Ewing, Larned; K. J. Gleason, Independence; P. W. Morgan, Emporia; L. S. Nelson, Jr., Salina; J. R. Neuenschwander, Hoxie; H. C. Sartorius, Garden City.

The Committee on Medical Assistants had two meetings during the year with the medical assistants' Executive Board.

At the meeting in June plans were made for the fall training course. It was felt the course had progressed to the point where it would be advisable to have only four meeting centers instead of the seven that had been selected previously.

This course is a means of further educating assistants and included seminars for office nurses, medical technologists, and office personnel. Talks were given



on prepaid medical plans and "A Patient Looks at His Doctor's Office." Other panel discussions included an explanation by representatives of the Vocational Rehabilitation Service, the County Welfare Department, and the Social Security Administration on the workings of their agencies in relation to medicine.

In checking registrations it was interesting to note that 100 of the assistants who attended the meeting did not belong to a medical assistants' group.

Since that time three new societies have been organized, making a total of 23 with approximately 750 members.

The chairman wishes to thank all who participated in the work of the committee during the past year.

A. C. Armitage, M.D., *Chairman*

#### MEDICAL ECONOMICS

G. E. Kassebaum, El Dorado, Chairman; J. N. Blank, Hutchinson; W. M. Campion, Liberal; K. L. Graham, Leavenworth; J. K. Griffith, Valley Falls; J. A. McClure, Topeka; M. B. Miller, Topeka; L. S. Nelson, Jr., Salina; R. T. Parmley, Wichita; E. B. Scagnelli, Dodge City; F. G. Schenck, Burlingame; L. W. Shepard, Larned; C. H. Steele, Kansas City.

The Committee on Medical Economics has been very active the past year. Meetings were held in May and October of 1957 and February and March of 1958. The life insurance program was finally launched and is now a going concern. It is felt that this is good insurance for every member and a must for those of questionable insurability.

The health and accident income policy with the Washington National Company was renegotiated and is now being reissued to all member policyholders with the new benefits. It is now comparable with other good insurance policies.

The committee authorized Secretary Oliver Ebel to publicize the fact that, contrary to recent statements by the Continental Casualty Company, that company does not have the Kansas Medical Society's approval of its program.

A standard insurance reporting form was prepared and adopted by the Society. This is now available to all Society members at low cost. We recommend you make use of it.

The State Department of Social Welfare has invited the medical society to join in conference with them regarding the indigent program. This was discussed quite thoroughly by the Economics Committee. The committee recommended that our Society ask for a deal for physicians only, suggesting that the Board of Social Welfare negotiate directly with pharmacists and hospitals for their parts in the program. A tentative fee of \$3.00 per month per person

on relief was suggested. To date no results have been achieved.

Social Security for physicians has been explored at every meeting of the committee. Facts regarding this program are hard to obtain, at least, unbiased facts. The following resolution was adopted:

WHEREAS, There is a question whether doctors of medicine should favor or oppose their inclusion under the Social Security Act, and

WHEREAS, The Committee on Medical Economics, having studied this subject with care, presents an analysis on page 188 of this issue

THEREFORE, Because of the reasons there outlined—because Social Security cannot be voluntarily selected on an individual basis except as it is currently available to physicians in partnerships or under terms of employment—because as an investment the benefits are inferior to other programs now available to the physician—because it is Socialism which, having begun as an apparently harmless program, is already exhibiting evidence of assuming massive proportions and dangerous significance—and because this opinion, while independently determined, is in agreement with the findings of the House of Delegates of the American Medical Association, be it

*Resolved*, That the Kansas Medical Society opposes the compulsory inclusion of doctors of medicine under the Social Security Act and that copies of this resolution be sent to each Kansas member of the House of Representatives and the Senate of the United States.

The committee generally approved the Keogh-Jenkins bill in principle and urged support by the profession. The book "What Will Social Security Mean to You?" prepared by the Institute for Economic Research of Great Barrington, Massachusetts, is recommended reading. It shows the good parts of Social Security and also exposes the faulty parts.

The Committee on Medical Economics recommends to the House of Delegates that the C. O. Finley Company of Chicago offer to the members of the Kansas Medical Society two programs:

1. A program for major hospital benefits with a \$10,000 hospital policy per family, on a deductible basis of either \$200, \$300, or \$500. The Kansas rates would be lower than some others because of a more favorable hospital experience and cost rate in this area.

2. A program covering accidental death and dismemberment. For a premium of 90 cents per thousand, the company will take up to \$250,000 for accidental death and dismemberment.

The chairman wishes to thank the members of the committee for their industry and cooperation. A better group could not have been found.

G. E. Kassebaum, M.D., *Chairman*

## Social Security for Doctors

There are two basic questions to be answered before arriving at an opinion on whether to favor or oppose the *compulsory* inclusion of doctors of medicine under Social Security.

### 1. *THE BUSINESS ASPECT.* How does this compare with retirement insurance payable at age 65?

PRIVATE INSURANCE	SOCIAL SECURITY
Benefits guaranteed to begin at 65, either lump sum or monthly payments	No lump sum payment. Benefits at 65 ONLY if retired, otherwise begin at 72.
Named beneficiary paid at death of insured	Wife paid only until children are 18 or if she is disabled after 50 or after she is 62
May have loan or cash redemption value	No loan value
Insured may cancel the policy	This is a compulsory tax taken from income to age 65
Premium determined on the face of the policy at time of purchase	<i>No limit</i> either on base or rate Today's cost \$141.75 In 1975 267.75 If Forand bill passes 570.00 MAY REACH ANY FIGURE
Benefits generally exceed total premiums	Benefits for physicians will rarely equal tax paid. Many will receive nothing
Uniform premium for all in same age group	Tax for self-employed is 1½ times rate for employees

### 2. *THE PHILOSOPHICAL ASPECT.* What are the real principles involved?

- a. Social Security is not insurance—it is taxation.
- b. Being compulsory and without limit, it is socialism and that is not divisible into fractions.
- c. The medical profession cannot, therefore, reject one form of socialism and request inclusion under some other form of socialism.

## MEDICAL SCHOOLS

M. C. Eddy, Hays, Chairman; R. G. Ball, Manhattan; E. W. Crow, Wichita; O. W. Davidson, Kansas City; R. W. Fernie, Hutchinson; D. B. Foster, Topeka; H. P. Jones, Lawrence; L. C. Joslin, Harper; L. H. Leger, Kansas City; D. Marchbanks, Hill City; J. C. Mitchell, Salina; J. G. Phipps, Wichita; N. V. Treger, Topeka; I. J. Waxse, Oswego.

One meeting of the Committee on Medical Schools was held during the past year. It was called for the purpose of improving to an even greater degree the already cordial relationships between the medical school and the profession.

First discussed was a means by which the faculty at the school might come into closer association with the Society. It was decided that the dean of the University of Kansas School of Medicine or his selected representative might be made an *ex-officio* (non-voting) member of the Council of the Society. The committee refers its decision on this matter to the Council for its consideration.

Doctor Wescoe next spoke about the unusual circumstance in which the University of Kansas Hospitals find themselves with reference to indigent care. The Board of Regents some years ago set a figure of \$7.00 as the per diem indigent hospital charge, which includes all medical care and drugs. This service accounts for an income of \$400,000 to \$500,000 annually. Many counties today prorate indigent care costs. In these counties the \$7.00 is also prorated, which then creates a serious financial burden to the Medical Center. The dean has requested the Board of Regents to raise the figure above \$7.00.

This is mentioned because a portion of the welfare budget is here directly charged against education. The committee requests that this be brought to the attention of the Council in its deliberation on indigent care.

The next general subject was the budget of the University of Kansas School of Medicine. In general, the University of Kansas School of Medicine is financed on the following basis: 62½ per cent of the total budget is earned income; 37½ per cent is appropriated by the legislature. This is the only educational institution in Kansas that earns one-half of its operating costs.

A proposal that an annual assessment of \$10 be levied against each dues-paying member of the Society to provide funds for a contribution to A.M.E.F. for use by the University of Kansas School of Medicine was approved by the committee. A recommendation that this be done is referred to the House of Delegates.

The next major item was under the heading of complaints. The first was the report of a rumor that a policy change at the university is now discouraging

physicians to enter general practice. This was immediately denied by Drs. Wescoe, Wilson, and Delp.

After considerable explanation verifying the university's continued interest in general practice, Dr. Wescoe presented an explanation of the national problem in this regard as it was being studied by the A.M.A. Council on Education and Hospitals. He said other national associations are working with the A.M.A. in an effort to provide a two-year residency experience rather than an internship which as it exists today in many places is outmoded and a waste of time. A report on this subject is still a year away, but it will involve a philosophy that a true general practice residency with a preceptorship will be the accepted mode of the future. If the various specialty groups will cooperate, this can be accomplished and will put training for general practice on the same basis as other specialties. The question is how much can be learned and not how long the study period has been.

After reiterating and illustrating the stand of the University of Kansas School of Medicine in general practice, the dean then presented the other side of the question. A medical school must stimulate students in all phases of medicine. Kansas, in addition to general practice physicians, also needs specialists and doctors in research. This, too, must be watched with caution. There is a distinct danger of adding professional requirements to the upper years and taking away from the early years to a point where formal medical education might become a two-year experience with a longer residency at its conclusion. This would represent a reversion to proprietary training and must be guarded against.

The dean stated that it is not so much what the physician knows that protects his patient, it is rather the maturity of the practitioner's judgment. A medical school perhaps does its best teaching in bringing to the student a mature judgment.

Another suggestion from the committee is that the faculty participate more in Society affairs. This was again discussed to include active county society participation as well as state. The committee felt this was a matter of degree and that the school already contributed much to organized medicine on all levels, the county, the state, and the nation.

The dean suggested that someone should become interested in staphylococci infections resistant to antibiotics. This is becoming a serious world-wide problem. Perhaps the Kansas Medical Society should become interested in this subject rather than to leave it to public health authorities. It may be desirable that a committee from the Society be appointed to accumulate and disseminate knowledge, including techniques, etc., on the general subject of these new resistant infections.



The next general subject related to medical relations with those osteopathic physicians who hold a license to practice medicine and surgery in Kansas. Dr. Delp expressed the problem as one in which taxpayers are asking to be included in the benefits. The question is whether osteopaths should be permitted to enroll in graduate courses given by the university. The committee recommends that osteopaths be permitted to enroll in graduate education offered by the University of Kansas School of Medicine and that the committee talk to the medical profession in support of this view.

The next item for discussion related to the selection of students at the University of Kansas School of Medicine. Dr. Wilson stated that fewer qualified students are applying for entry into school than formerly and that all schools are experiencing similar situations. Kansas has room for 100 in the entering class. They received 275 bona fide applications, 150 from Kansas, others from out of the state. All Kansas applicants were interviewed, and 35 out-of-state applicants were interviewed. From this number 85 qualified applicants were obtained. There was then considerable difficulty in selecting the remainder. Invitations were finally issued to 114, 12 from other states, an additional 8 from Kansas City, Missouri, and the remainder from Kansas. Since that time, seven have already withdrawn their applications. A portion of these were from the top level of potential students who received scholarships from endowed schools. The total available is now 107 with the possibility of others withdrawing before the school year begins. Another problem is that the grade point average is lower than usual. This stands at 2.1, just over a B average.

In response to questions, Dr. Wilson explained that six or seven students drop out during the first year, and after the second year few are lost except because of health. Great care is used in the selection of students. There is an 11-man admissions committee, and at least five from this committee see each prospective student within a period of four days. Certain other safeguards are employed as, for example, motivation tests, etc. It has also been discovered that when a student comes with a grade point average of lower than 1.3, he must have something exceptional to be accepted because school work will be difficult for him. It has also been shown that students older than 26 years of age generally have a difficult time.

In response to another question, Dr. Wescoe stated his opinion that state licensing boards should concentrate on establishing the qualifications of each applicant for a license and then enforcing the law but licensing boards should not feel it necessary to give

qualifying examinations. He thought a passing grade and a degree from a reputable school should establish the quality of a physician's training. He thinks if boards would abandon the examination it would relieve them from tedious problems and enable them to perform more important services.

Members of the faculty were asked whether they have complaints about the profession. Response indicated that difficulty is sometimes occasioned when well-meaning physicians advise friends and relatives to study medicine when they are unequipped to pursue such studies.

The major problem confronting the Kansas school at present is its divided campus, in the opinion of Dr. Wescoe. He believes it essential that the four-year course be taught on one campus and recommends that the first year be transferred to Kansas City. This is the only fully approved school in the United States that is not operated in one location.

In response to a question, Dr. Wescoe explained the purpose of a medical school as follows: to provide a student with basic information fundamental to all fields of medicine, to create within this student a curiosity in and a respect for the scientific approach, to give him a desire to continue his education, and to prepare him in the fundamentals of an undifferentiated physician.

Murray C. Eddy, M.D., *Chairman*

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#### MEDICARE

L. S. Nelson, Sr., Salina, Chairman; R. M. Carr, Junction City; G. B. Joyce, Topeka; C. W. Miller, Wichita; C. J. Wilen, Manhattan.

Your Medicare Committee met four times during the past year and has discussed as well as made an attempt to fairly adjudicate 183 cases. We have been assisted by several members of the Blue Shield staff as well as by Mr. Oliver Ebel, our executive secretary.

Many directives have been added to alter somewhat the original law. These alterations have been, for the most part, helpful in clarifying some difficult problems. Referrals, assistants' fees and consultation are the most frequent and the most difficult. The committee hopes that the membership realizes that the law and the directives must guide us in our decisions. We especially wish to call attention to this fact. *The government, according to law, may recover money where charges to Medicare were greater than the customary fee charged by that physician.*

From the members of K.M.S., we have received several explanatory letters in difficult cases. These we have appreciated very much because they have helped in our settling a claim. There have been a few highly

critical letters which have in the past and will in the future be ignored.

We would like to assure the Society that this experience is a tiresome and exacting full day at each meeting, beginning at 10:00 a.m. and lasting until all cases have been finished. The members of the committee believe that it is a service which must be rendered and are willing to do their best for the Society as a whole.

We repeat, however, that our efforts are governed by two chief considerations. One, we must obey the law, and, two, observe the ethics of our profession.

L. S. Nelson, M.D. *Chairman*

#### MENTAL HEALTH

P. W. Thompson, Topeka, Chairman; A. J. Adams, Wichita; H. V. Bair, Parsons; A. P. Bay, Topeka; O. R. Cram, Jr., Larned; J. A. Dunagin, Topeka; T. L. Foster, Halstead; L. F. Glaser, Hutchinson; E. D. Greenwood, Topeka; T. R. Hood, Topeka; G. W. Jackson, Topeka; H. P. Jubelt, Manhattan; G. E. Kassebaum, El Dorado; P. C. Laybourne, Jr., Kansas City; R. A. Moon, Prairie Village; F. C. Newsom, Wichita; W. F. Roth, Jr., Kansas City; W. C. Schwartz, Manhattan; F. A. Thorpe, Pratt; H. V. Williams, Topeka; M. E. Wright, Lawrence; E. D. Yoder, Denton.

The Committee on Mental Health has met twice in Topeka, with good attendance. A third meeting will be held soon.

Much of our time continues to be taken up with problems connected with a uniform commitment law. Dr. Thomas Hood has been concerned that previous proposals threaten to curtail certain functions of the Kansas State Board of Health. His staff is now preparing a proposal which he believes will be acceptable to all interested medical groups. Cooperation with others such as the bar association and probate judges' association will then be sought.

The president has urged our committee to concern itself with psychiatric education of the general practitioner and others in the profession. To this end, Dr. O. R. Cram and the chairman attended a workshop on this subject held by the Council on Mental Health of the A.M.A. in November. The suggestion was advanced that A.A.G.P. chapters or other interested groups set up seminars so that psychiatrists and other physicians sit down together and talk about actual patients who come frequently into doctors' offices. This could of course be done in several ways, either over a two- to three-day period or at regular weekly or twice monthly intervals over a longer period of time. The committee welcomes further suggestions and pledges its cooperation in such efforts.

Prescott W. Thompson, M.D., *Chairman*

#### NECROLOGY

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. Greer, Topeka; D. Lawson, Topeka; J. A. Segerson, Topeka.

The Committee on Necrology submits the following list of members of the Kansas Medical Society whose deaths have been reported since the last meeting of the House of Delegates:

<i>Name and Address</i>	<i>Age</i>	<i>Date 1957</i>
Dr. Claude E. Burtch, Portis	82	Mar. 7
Dr. Friedrich W. Tretbar, Stafford	76	Mar. 18
Dr. Robert Lee Graham, Topeka	48	Mar. 22
Dr. Charles Samuel Adams, St. John	81	Apr. 21
Dr. Justus Odell Williams, Emporia	77	May 7
Dr. Earl Finley Clark, Belle Plaine	77	June 2
Dr. Arthur Cornelius Gulick, Goodland	88	July 4
Dr. Clarence Horace Kinnaman, Topeka	88	July 9
Dr. Benjamin Harrison Mayer, Ellsworth	69	July 17
Dr. Charles Francis McNair, Hutchinson	79	Aug. 9
Dr. Lewis A. Curry, Topeka	63	Aug. 11
Dr. James Lloyd Jensen, Colby	71	Aug. 13
Dr. Alonzo Pitt Gearhart, Wichita	84	Aug. 18
Dr. Henry Blackburn Miller, Rossville	76	Sept. 8
Dr. George Arthur Westfall, Sr., Halstead	66	Sept. 18
Dr. Clarence Avery Parker, Wichita	80	Sept. 19
Dr. James Harvey McNaughton, Topeka	77	Sept. 25
Dr. Enoch Schumann, Blue Rapids	76	Sept. 27
Dr. Benjamin Brunner, Jr., Wamego	45	Sept. 29
Dr. Lyman C. Murphy, Wichita	75	Oct. 4
Dr. Vester R. Vinsant, Summerfield	58	Oct. 29
Dr. James Emerson Farmer, Wichita	81	Oct. 31
Dr. Fred Akin Garvin, Augusta		Nov. 1
Dr. Eugene Albert Reeves, Kansas City	50	Nov. 7
Dr. Walter Peter Stoltenberg, Kinsley	75	Nov. 17
Dr. Francis Marion Shonkwiler, Emporia	83	Nov. 24
Dr. Llewellyn Magellan Hinshaw, Bennington	82	Nov. 28
Dr. Spencer Norman Chaffee, Solomon	85	Dec. 11
Dr. John Ross Campbell, Pratt	68	Dec. 19
Dr. Almonta Deaver Hays, Cherokee	85	Dec. 20
Dr. Vernon Melvin Winkle, Topeka	56	Dec. 31
Dr. Walter Newton Mundell, Hutchinson		1958
	77	Jan. 2
Dr. Henry Bradley Sullivan, Shawnee	61	Jan. 17
Dr. Thomas Tallman Holt, Wichita	82	Jan. 18
Dr. William Holmes Dyer, Kansas City	71	Jan. 21
Dr. Harley James Stacey, Leavenworth	87	Jan. 27
Dr. William Rolland Palmer, Kansas City	79	Jan. 30
Dr. Hugh Allen Hope, Hunter	72	Feb. 6
Dr. Porter D. Brown, Salina	77	Feb. 10
Dr. Glenn Q. Street, Wichita	45	Feb. 17
Dr. John King Harvey, Salina	76	Feb. 20
Dr. Henry George Hurtig, Hanover	73	Feb. 20
Dr. E. Wendell Donald, Kansas City	43	Mar. 1

Orville R. Clark, M.D., *Chairman*

## NOMINATIONS

M. C. Eddy, Hays, Chairman; C. M. Barnes, Seneca; C. H. Benage, Pittsburg; O. W. Davidson, Kansas City; L. S. Nelson, Sr., Salina.

As required under the By Laws, Chapter VI, Section 1, the duly elected Nominating Committee met on Saturday, January 11, 1958, in Kansas City and respectfully submits the following slate of officers for consideration by the House of Delegates at Kansas City, May 4-7, 1958. The president will also call for nominations from the floor for each elective office.

**President-Elect**

**Glenn R. Peters, M.D.**, Kansas City, Kansas. Born 1912. M.D., University of Kansas, 1937. Diplomate, American Board of Surgery. Has served as councilor, was second vice-president, currently is first vice-president.

**First Vice-President**

**Frederick E. Wrightman, M.D.**, Sabetha, Kansas. Born 1892. M.D., Washington University, 1917. Specializes in cardiovascular disease. Has served as councilor and on the Interprofessional Advisory Council, currently is second vice-president.

**Second Vice-President  
(listed alphabetically)**

**Winstan L. Anderson, M.D.**, Atchison, Kansas. Born 1909. M.D., University of Kansas, 1934. Member, American Academy of General Practice. Has been chairman of Committee on Industrial Medicine, has served two terms as councilor of District No. 1.

**Justin A. Blount, M.D.**, Larned, Kansas. Born 1894. M.D., University of Kansas, 1922. Practices general medicine and surgery. Has served on committees, currently is councilor for District No. 14.

**Harold M. Glover, M.D.**, Newton, Kansas. Born 1887. M.D., University of Illinois, 1916. Diplomate, American Board of Surgery. Has served on committees, currently is councilor of District No. 10.

**Treasurer**

**John L. Lattimore, M.D.**, Topeka, Kansas. Born 1894. M.D., Fort Worth School of Medicine, 1918. Diplomate, American Board of Pathology. Was president of Kansas Medical Society, currently is treasurer.

**Secretary**

**George E. Burket, Jr., M.D.**, Kingman, Kansas. Born 1912. M.D., University of Kansas, 1937.

Member, American Academy of General Practice. Has been president of Kansas Academy of General Practice. Currently is secretary of Kansas Medical Society.

**A.M.A. Delegate**

**Lucien R. Pyle, M.D.**, Topeka, Kansas. Born 1901. M.D., Rush, 1928. Diplomate, American Board of Obstetrics and Gynecology. Was president of Kansas Medical Society, currently is A.M.A. delegate.

**Alternate A.M.A. Delegate  
(listed alphabetically)**

**Conrad M. Barnes, M.D.**, Seneca, Kansas. Born 1911. M.D., University of Kansas, 1936. Was president of Kansas Medical Society. Currently is immediate past president of Kansas Academy of General Practice.

**Norton L. Francis, M.D.**, Wichita, Kansas. Born 1910. M.D., University of Nebraska, 1935. Diplomate, American Board of Otolaryngology. Was chairman of Fee Schedule Committee. Currently is completing his second term as councilor for District No. 11.

**Robert G. Klein, M.D.**, Dodge City, Kansas. Born 1891. M.D., University of Illinois, 1915. Specializes in surgery. Has been chairman of the Fee Schedule Committee and has served two terms on the council.

Murray C. Eddy, M.D., *Chairman*

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**PATHOLOGY**

A. A. Fink, Topeka, Chairman; T. R. Hamilton, Kansas City; C. A. Hellwig, Halstead; W. J. Reals, Wichita; C. J. Weber, Salina.

No matters requiring action by the committee were brought to the attention of the chairman during the past year, so no meetings were held.

A. A. Fink, M.D., *Chairman*

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**PERINATAL WELFARE**

W. H. Crouch, Topeka, Chairman; E. X. Crowley, Wichita; H. M. Floersch, Kansas City; H. P. Jubelt, Manhattan; G. M. Martin, Topeka.

The Perinatal Welfare Committee has met on two occasions. Since this is a new committee, most of the meeting time was spent in discussion of future plans



analyzing the present work in this field in the state of Kansas, and in analysis of premature mortality statistics obtained from Kansas birth and death certificates. We felt the function of this committee should be aimed at an effort to cut down the number of prenatal, intranatal, and neonatal deaths and morbidity.

It was felt that the first attempt to accomplish this function was to embark upon a study of perinatal mortality, as obtained from the birth and death certificates of Kansas. This study should statistically point at analysis of these statistics, should point toward the medical reasons for neonatal and stillbirth mortality and morbidity, as well as the geographical distribution of excessive neonatal and stillbirth mortality.

It is hoped that the beginning work for this committee can be enlarged upon in the ensuing years.

William H. Crouch, M.D., *Chairman*

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#### POSTGRADUATE STUDY

W. H. Algie, Kansas City, Chairman; G. E. Burket, Jr., Kingman; M. H. Delp, Kansas City; M. C. Eddy, Hays; D. B. Foster, Topeka; D. Lawson, Topeka; E. L. Mills, Wichita; E. J. Ryan, Emporia.

The Committee on Postgraduate Study met on March 31, 1957. The members of the committee were appointed by Dean Wescoe to the joint committee of the University of Kansas Medical Center for Postgraduate Education and met in this capacity.

At this meeting the previous year's postgraduate program at the Medical Center was discussed and an outline was suggested for activities for the following year.

In the fall a letter was sent to all members of the Kansas Medical Society on the subject of the circuit course being presented by the Medical Center.

This has been the principal activity of this committee for several years, and probably will continue to be so.

W. H. Algie, M.D., *Chairman*

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#### PUBLIC RELATIONS

C. W. Miller, Wichita, Chairman; A. L. Ashmore, Wichita; D. E. Gray, Topeka; C. C. Gunter, Quinter; M. S. Lake, Salina; J. L. Lattimore, Topeka; J. W. Manley, Kansas City; M. D. Morris, Topeka; E. Myers, Iola; V. E. Wilson, Kansas City.

It appears unnecessary to review again the philosophy on which a public relations program for the Kansas Medical Society is established. It appears unnecessary also to cite the many public opinion polls

that have been conducted by various state societies, including Kansas, and by the A.M.A.

Nor is there any change in the conviction that the greatest public relations that can be carried on in medicine is the giving of satisfactory care under circumstances that are agreeable to the patient and his family and at a cost he is willing to pay. If this were universally performed to perfection, there would be no need for any artificial stimulus within the realm of this subject.

Unfortunately some medical care is less than the best that is capable of being given. Unfortunately charges are not always realistic. And unfortunately also the patient has at times misunderstood or failed to understand what has actually been very good care at reasonable cost.

Therefore, it has appeared to your committee and has been endorsed by the Council that the Kansas Medical Society should conduct an intensified program of public information. For the present the following has been started and will be carried forward into the coming fiscal year.

The Society will increase its news coverage through the press. The policy has been approved that a public statement should be issued following almost every committee meeting and that each committee shall take some action or offer an expression that might be newsworthy. Other newspaper releases shall be issued whenever the occasion arises on subjects of general interest to the people of this state.

Program No. 2 is to establish a regular weekly radio news broadcast in the field of health. Here current journal articles upon subjects of lay interest will be discussed with the aim of establishing confidence that medicine is advancing. These programs will be transcriptions of 12-minute duration, or less should the station prefer a shorter period, and played on the air at selected stations to provide the best possible geographical distribution. The programs will be prepared in the Executive Office and there will be frequent guest appearances by physicians upon specific medical subjects.

The third major project concerns live television shows. These are being prepared to be informative upon special medical topics and shall be presented by a panel of perhaps two physicians with the aid of a piece of equipment. A series, for example, might be presented upon the various laboratory procedures in which the purpose of the test is explained and the laboratory work is demonstrated. Similar series may present specific instruments or historical items. It is recommended, however, that in each program there shall be something to demonstrate to bring a semblance of the dramatic into the performance. The Executive Office will prepare the scripts and assist the

local profession in production. However, it should be performed by local physicians, live, on the local stations and will also be 15 minutes in length.

A fourth project is the possibility of producing in one or two locations of the state an hour-long live surgical procedure directly from the hospital. Such programs have been tried successfully elsewhere, notably in Seattle, Des Moines, and Kansas City. Students of high school and college level interested in scientific subjects will be especially invited to watch this program. This also must be planned long in advance and heavily advertised prior to its production. A great many local problems must be solved before this can be done, not the least of which is the selection of the professional staff that will perform for the event.

A fifth program recommended by this committee has to do with health workshops. This is an especially effective public relations opportunity both in the youth and the adult field where a local community meets to discuss local health problems. These have been conducted in many communities. This committee recommends to the local medical profession that a more active participation in such projects represents the finest ready-made public relations opportunity of all.

C. W. Miller, M.D., *Chairman*

#### RELATIONS WITH BAR ASSOCIATION

T. P. Butcher, Emporia, Chairman; L. G. Allen, Kansas City; P. C. Nohe, Kansas City; C. R. Rombold, Wichita; R. E. Stowell, Kansas City; K. E. Voldeng, Wellington.

An "Interprofessional code of Kansas for attorneys and physicians" was evolved after considerable correspondence and informal discussions between ourselves, and with Mr. Ford Harbaugh, Wellington attorney, who is chairman of the committee for the Kansas Bar Association.

This code has been endorsed by each member of the committee for the medical society and the committee for the bar association and was, on January 26, submitted to the Council of the Kansas Medical Society for referral to the House of Delegates meeting in May, 1958. It is likewise being submitted by Mr. Harbaugh for action by the Bar Association at its meeting this spring.

T. P. Butcher, M.D., *Chairman*

#### RURAL HEALTH

V. E. Brown, Sabetha, Chairman; J. G. Claypool, Howard; M. F. Frederick, Hugoton; R. E. Grene, La-Crosse; H. W. Hiesterman, Quinter; F. Law, Ellinwood; B. N. Lies, Colwich; R. M. Owensby, Mankato; L. W.

Patzkowsky, Kiowa; R. R. Snook, McLouth; E. F. Steichen, Lenora; C. R. Svoboda, Chapman; R. M. Thomas, Marysville; M. H. Waldorf, Jr., Greensburg; T. L. Wayland, Nashville; H. O. Williams, Cheney; E. D. Yoder, Denton.

Your Committee on Rural Health held one meeting during the past year. In addition, the chairman spent some time with various farm organizations discussing rural health problems. Through the efforts of the committee, in cooperation with the Extension Division at Kansas State College and the Kansas Farm Bureau, over 25,000 pamphlets entitled "Your Family Health Record" have been distributed to the rural population of Kansas.

The chairman attended two national meetings for the committee—one at Purdue University and the other in Jackson, Mississippi.

In 1959 Kansas will be honored to be host at the A.M.A.'s 14th National Conference on Rural Health in Wichita, March 5-7. The committee hopes to make this meeting the best the A.M.A. has had. In order to do so, we will require the cooperation of the governing body of the Society as well as individual rural practitioners.

The committee passed a resolution recommending that each component society appoint a rural health committee to help prepare for the 1959 conference. It is hoped that the House of Delegates will make an official recommendation in this regard.

Mr. Aubrey Gates, secretary of the Council on Rural Health of the A.M.A., attended the committee meeting and predicted a busy year for the group in 1959. He suggested that prior to making formal plans, the committee members should make an effort to become well acquainted with farm organizations of Kansas. He recommended also that the Auxiliary be invited to help with plans for the conference.

The committee looks forward to the 1959 meeting in its plans for next year's activity. It also will continue the physicians' placement service to help communities find physicians for areas in need of additional medical care.

V. E. Brown, M.D., *Chairman*

#### SAFETY

J. A. Grove, Newton, Chairman; C. M. Barnes, Seneca; F. C. Beelman, Topeka; R. Greer, Topeka; A. E. Hiebert, Wichita; H. E. Snyder, Winfield; T. E. Young, Winfield.

The problem facing this committee is: What can the Kansas Medical Society do to help reduce the number of accidental injuries and deaths in Kansas? The following outline presents details of this committee's study.

## 1. Traffic

## a. Driver Licensing

The medical profession has a responsibility because certain individuals are physically and mentally unfit to earn a driver license. Three questions were discussed. Should there be a physical examination? Who should give it? What medical standards should be used?

It was the opinion of the committee that a physical examination will shortly be required by law in Kansas, and it would be well for our Society to have a plan ready to recommend to the legislature. This plan should set up minimal standards coordinated with those of other states. It should determine what doctors would make the examinations and set a fee appropriate to the work necessary.

## b. First Aid

Kansas is near the bottom of the list of states making first aid available to injured persons. Ambulance service is a variable commodity, both urban and rural. Ambulance attendants are untrained for the most part. Splinting of injured extremities is almost never done by ambulance attendants; in fact most ambulances are not equipped with splints. Hospital emergency rooms are poorly equipped and maintained.

It was the opinion of the committee that the Society should institute a program to train ambulance attendants—through utilizing the courses offered by the American Red Cross, local nurses and doctors, and university and college courses—that a certification award for completion of a first aid course be given by the Society in the form of a letter and a sticker for the windshield for the ambulance; that a concentrated drive, by publicity and all other means, be used to get splints in every ambulance and in every hospital emergency room; and that the major truck lines operating in Kansas be equipped with splints and first aid kits, for there is seldom a long time day or night that a large truck does not roll along the highway.

## c. Cornell University Medical College Automotive Crash Injury Research

Two years ago the Society and the state were asked to participate in the research project being done by Cornell. This was not done because of two reasons, politics and lack by the state of sufficient highway patrolmen to carry out the project. It involves an extensive report to be filled out by the investigating officer and another report to be filled out by the attending physician

at the hospital. It offers the best set of facts from which some solution can be worked out for the epidemic of death and destruction on our highways.

It was the opinion of the committee that the Society keep trying to get this project started in Kansas—if not statewide, then in a limited field such as on the turnpike, a ready-made laboratory with fences.

## 2. Home

## a. Prevention of Accidents

A great deal of work is being done by the Kansas State Board of Health through many of the state organizations—Farm Bureau, 4H, HDA, Scouts, and many others that deserve recognition.

## b. First Aid

Again the many organizations that have first aid courses for the home, be it urban or farm, deserve recognition and much encouragement and help from the Society.

It was the opinion of the committee that publicity be given to the fact that the medical profession approves the work done by the many organizations and feels that in the future greater efforts must be made to reduce injuries and deaths among the age groups from 1 to 14 years of age, as over 65 per cent of accidents are in this age group.

## 3. Mass Casualties

## a. Disaster Plans

There is a great need in Kansas for a coordinating agency to formulate a master plan to utilize the medical resources presently available and outline those needed in the future in case of great disaster. It was the opinion that there was little or no planning on the county society level and, in the great majority, no community planning or coordination of plans in operation at present. Hospitals, because of accreditation rules, do have skeleton plans; but those are for the most part within the hospitals themselves.

It is the recommendation of the committee that the Society initiate planning statewide to utilize medical resources in case of great disaster.

The Committee on Safety wishes to recommend the following to the Society for its consideration.

1. That physical standards for driver licensing be drawn up by a committee of the Society. This committee should determine what doctors would make the examinations and what fee should be set.



2. That a program of training of ambulance attendants in first aid be sponsored by the Society, that the Society grant a certificate for those who complete an acceptable course and also give a windshield sticker for ambulances having trained attendants. In conjunction with the above, the Society, by a concentrated publicity drive, could get splints and first aid equipment into every ambulance.

3. That the Society, when feasible with state cooperation, invite the Cornell University Medical College to carry out its research program in our state.

4. That the Society give public approval to the work being done by the Kansas State Board of Health and many other organizations in home safety.

5. That the Society initiate planning to utilize medical resources in case of mass disaster and coordinate those plans with civilian and military plans.

6. That a paper, by an outstanding man, on the subject of safety, trauma, or mass disaster be given at the annual Society meeting.

John A. Grove, M.D., *Chairman*

#### SCHOOL HEALTH

C. M. Barnes, Seneca, Chairman; W. F. Bernstorff, Winfield; J. A. Butin, Chanute; W. H. Crouch, Topeka; H. G. Gianakon, Kansas City; E. D. Greenwood, Topeka; H. P. Jubelt, Manhattan; P. C. Laybourne, Kansas City; H. Lutz, Augusta; W. C. Menninger, Topeka; F. D. Murphy, Lawrence; R. R. Snook, McLouth; Leland Speer, Kansas City.

Several meetings of this enthusiastic group of physicians were held this past year. In addition to committee meetings, the members attended and helped make successful, the Annual School Health Conference at the University of Kansas Medical Center on October 10, 1957.

Following the School Health Conference, Dr. Jubelt attended, as the first representative of the Kansas Medical Society, the National Meeting of Physicians and Schools in Highland Park, Illinois. He brought back information of great importance to the medical society and to all Kansas physicians. As the result of attending this national meeting, Dr. Jubelt feels that all physicians must educate themselves concerning "School Health." The public, greatly interested in health improvement, is actually awaiting the physicians to point the way and to guide them in solving this problem more perfectly. The educator and the physician must establish liaison! Until channels of communication exist between doctors and teachers, there can be no good school health programs. The device or instrument for establishing this liaison is the School Health Council. Your committee desires that both state and local school health councils be established.

We are happy to say that liaison between educators and physicians is being established in Kansas. So much is this a fact that at the fall School Health Symposium at the University of Kansas Medical Center on October 9, 1958, the state of Kansas School Health Council will become a fact. Dr. Hobson, professor of education, K.U., and Dr. Thiehoff, professor of preventive medicine, K.U. Medical School, have worked faithfully and incessantly with our medical society Committee on School Health so that plans are now underway to organize and establish the Kansas School Health Council on October 9, 1958. This date is also the time of the fall School Health Conference at the K.U. Medical Center. Come, help us make this glorious start!

Our committee member, Dr. William H. Crouch, has been chosen as chairman of the organizational committee for the Kansas Health Council. The other members of his committee are: Dr. Geoffrey Martin, Dr. Willard Bellinger, Dr. Cloy Hobson, and Mr. Edward Curry.

You will be interested to know that school health research programs are being set up in Iola and Lawrence.

Some of the basic fundamentals of adequate school health programs may be gleaned from the following statements:

School health is a local problem, and information from the A.M.A. and N.E.A. concerning a good program is always and necessarily subject to local modification. The local school health council is the best solution.

The National Congress of Parents and Teachers is on record as favoring continuous health supervision and periodic examinations in the physician's office. Mass examination is not considered good school health practice. Adequate examination and counseling of the pupil with the parents in the doctor's office accomplishes most and is the best practice. School administrators and boards should do everything possible to encourage parents to assume responsibility for "child health." Parents should see that adequate examinations and corrections are planned and carried out. There is also a great need for periodic school personnel examinations.

The to-be-formed School Health Council for the state of Kansas, being closely allied with organizations representing state-wide interests, can be an effective group for promoting coordination, evaluating progress, planning future developments, and stimulating development of local health councils.

So, dear Kansas physician, please be ready to guide and help in this most important preventive medicine and health education crusade. More information may be obtained by you if you seek it. Why not attend the

School Health Conference next October 9, 1958, and really be brought up to date on this important subject? The theme for this fall conference is, "Organizing for School Health." Much of the discussion, in which you are invited to take part, is concerned with, "What Is a Good School Health Program" and "What Is the Role of the Private Physician in School Health?"

Our committee hopes that you will feel responsible for this medical privilege of planning for school health. We hope you will be interested enough to attend the School Health Conference on October 9, 1958, at the University of Kansas Medical Center!

Conrad M. Barnes, M.D., *Chairman*

#### STORMONT MEDICAL LIBRARY

W. Mau, Topeka, Chairman; J. W. Campbell, Lawrence; C. C. Hunnicutt, Sabetha; R. M. Thomas, Marysville; R. P. Woods, Topeka.

The status of the Stormont Medical Library has remained essentially unchanged through the past

year with the exception of the library being moved to the fifth floor, north wing of the state house. The new quarters, though small, are adequate and meet the library's basic needs. More active usage of the library's excellent facilities by Kansas physicians is strongly urged. There is an especially good selection of medical periodicals available. New publications are being continually received, selected, and obtained.

Walter Mau, M.D., *Chairman*

#### STUDY OF HEART DISEASE

G. L. Norris, Winfield, Chairman; D. R. Bedford, Topeka; E. G. Dimond, Kansas City; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; P. W. Morgan, Emporia; R. F. Morton, Arkansas City; L. O. E. Peckenschneider, Halstead; M. Snyder, Salina; D. C. Wakeman, Topeka; G. B. Wood, Wichita.

We have had no meetings of this committee during the past year and therefore can make no formal report.

G. L. Norris, M.D., *Chairman*

## Special Reports

### *Activities of Affiliated Groups and Committees*

#### BLUE SHIELD

Each year it is the custom of Blue Shield's president to report to the physicians of Kansas. In this report I will touch on enrollment, finances, the major activities of the past year, and why doctors should make Blue Shield work successfully.

*Enrollment in Blue Shield* continued to gain with a net increase of 14,886 members as a result of new enrollment. However, the total membership was increased an additional 38,184 members due to an adjustment in the number of participants per contract. This made a total gain of 53,070 for the year. Total Blue Shield members as of December 31, 1957, was 512,278. The cancellation rate remained relatively steady, being 14.3 per cent.

*Financially speaking*, Blue Shield operations for 1957 were on a near break-even basis. A contribution to reserve of \$8,929.35 or 0.15 per cent was recorded. This reflects the increased benefits which were put into the plan in 1956 as well as the increased utilization which came about during the latter part of 1956 and 1957. Payments to physicians in 1957 were increased by \$649,134.40. This reflects the increased number of members as well as the substantially greater benefits that Blue Shield now provides.

*Study of the problem of financing medical care of the aged.* A Study Committee composed of interested physicians and hospital administrators has been active during the past year. The Kansas Medical Society has an official representative on this committee. Conclusions of the committee so far suggest that:

1. Unless the medical profession assumes leadership in solving the health care problems of the aged, the problem will be turned over to the federal government by default.

2. The problems of the aged can be solved only as a community project under the leadership of local medical groups in cooperation with hospitals, pharmacists, and community leaders.

3. New, less costly methods of treating old people must be found if prepayment plans are to be used as a means of financing this care.

4. Blue Shield and Blue Cross can help develop prepayment methods only after local communities have agreed upon the program to be followed.

*A new comprehensive plan* has been worked out and is to be offered to the House of Delegates for approval. It is important that all of us understand the purpose of this new plan. In a phrase, it is to maintain Blue Shield leadership.

Blue Shield must continually move ahead to explore new ways of covering medical services on a sound basis. Under the present basic Blue Shield contracts, the services of many physicians are not covered. However, the comprehensive plan, by using deductibles and coinsurance, brings all physicians' services into the scope of coverage.

The rates of the comprehensive contract are necessarily high. It is intended that the contract will be offered only to larger employee groups to give us gradual experience with this new form of coverage. Thus the risk will be limited to a few groups and will permit sufficient control to safeguard the financial stability of Blue Shield.

*Physicians Relations Program.* We hope there has been increased understanding in the field of professional relations during the year. The Review Committee at Wichita has been a great help both in deciding cases and in our relations in Wichita. A new committee has been formed in Salina and we are sure the same good results will follow. The Blue Shield Relations Committee of the Kansas Medical Society has been active and has helped in the necessary two-way communications between Blue Shield and the doctors of Kansas. The 17 district committees are composed of leaders of the local societies. The problems discussed at district meetings receive sound consideration.

The Fee Committee of the Kansas Medical Society has been helpful in that it has produced a careful statement outlining responsibility in carrying out the assignment of the Kansas Medical Society.

Now a few words about the need for a strong commitment to Blue Shield. The medical profession faces a stern challenge. Either we find a proper method for the American people to finance medical care on a voluntary basis or the politicians will handle the problem for us. We feel that participating physicians have developed the answer in the service benefit principle which undergirds Blue Shield.

If we have the imagination to see the hazardous situation in which we find the medical profession; if we have the intelligence to approach this problem not with a negative reaction but with a positive solution; and if we have the concern to keep the practice of medicine on the high and politically unencumbered plane where it should be, then the medical profession will retain its position of leadership and will conclusively demonstrate that voluntary prepayment—and particularly our Blue Shield Plan—is far superior, for both the subscriber and the physician, to a plan of federal control and increased taxation.

I wish to thank the members of the medical society, and especially those members of the committees of the Society who have given of their time and experience

in helping to make improvements this past year possible. We have had excellent cooperation both from the physicians and the executive staff of the medical society. It has been a privilege to serve as president of your Blue Shield Plan the past year.

Francis T. Collins, M.D., *President*

## Periarthritis and Hypertension

(Continued from Page 146)

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## Radiological Society Elects

The annual meeting of the Kansas Radiological Society was held on February 10, 1958, and the following officers were elected: president, Dr. G. Sherman Ripley, Jr., Salina; vice-president, Dr. Louis G. Allen, Kansas City; secretary, Dr. James R. Stark, Wichita; councilor to the American College of Radiology, Dr. Charles M. White, Wichita; alternate councilor, Dr. A. M. Cherner, Hays.

### CLASSIFIED ADVERTISEMENTS

FOR SALE OR LEASE—7-room air-conditioned office recently built. Lucrative practice in rich farming and industrial area in Nebraska. New, open-staff hospital in town. Wish to complete board training. Leaves town with no surgeon. Territory and population warrant two doctors. Write the JOURNAL 5-58.

LABORATORY X-RAY TECHNICIAN wanted in Belleville. Work in hospital and in private office. Write the JOURNAL 6-58.

FOR RENT—Kansas City Neighborhood office. Four consultation rooms, small lab, share reception room with dentist. Excellent location in middle class neighborhood. Write the JOURNAL 8-58.



## PHYSICIANS' ACTIVITIES

**Dr. George F. Gsell**, Wichita, was speaker at a meeting of the Oklahoma Academy of Ophthalmology and Otolaryngology in Oklahoma City on February 19.

A community celebration honoring **Dr. Herschel R. Turner**, Hope, was held on March 14 with special invitations issued to all persons at whose births he had officiated during his 40 years of practice.

**Dr. John D. McCrary**, formerly on the staff of the Department of Obstetrics and Gynecology of the University of Nebraska College of Medicine, Omaha, has joined the Nelson Clinic in Manhattan and is associated in practice with **Dr. Robert G. Heasty**.

**Dr. Ward A. McClanahan**, Wichita, recently became a diplomate of the American Board of Orthopedic Surgery.

**Dr. George R. Learned**, a graduate of the University of Kansas School of Medicine who recently completed a residency in surgery, has begun practice in Lawrence in association with **Dr. L. K. Zimmer**.

Five Wichita physicians were contributors to the December issue of *American Surgeon*. **Dr. A. E. Hiebert** and **Dr. H. W. Brooks** were authors of a paper, "Surgical Repair of Radiation Injuries," **Dr. William J. Reals** and **Dr. Edward J. Fitzgerald** wrote on "Newer Diagnostic Methods in Thyroid Disease," and **Dr. M. M. Tinterow** presented a discussion on "Postoperative Care—Role of Recovery Room."

**Dr. Bill Gardner**, a 1957 graduate of the University of Kansas School of Medicine, has announced plans to practice in Douglass when he completes internship at Wesley Hospital, Wichita, in July.

A physician who formerly practiced in Junction City, **Dr. Jack T. Peterson**, moved to Wamego last month and opened an office there. Before beginning practice in Junction City he had been in the Army Medical Corps, stationed at Fort Riley.

**Dr. Robert Kitchen**, a graduate of the University of Kansas School of Medicine in 1952, who began a psychiatric residency at Winter VA Hospital in 1955, has joined the staff of the Kansas Children's Treatment Center, Topeka.

## DEATH NOTICES

GLENN Q. STREET, JR., M.D.

Dr. Glenn Street, 45, a member of the Sedgwick County Medical Society, died at Wichita on February 17. A graduate of Tulane University School of Medicine, New Orleans, Dr. Street came to Kansas after a tour of duty with the Army Medical Corps in World War II, specializing in psychiatry. He was a member of the local, state and national psychiatric associations and had served as president of the Wichita group.

JOHN KING HARVEY, M.D.

An honorary member of the Saline County Society, Dr. John K. Harvey, 76, died at Salina on February 20. He was graduated from the University of Kansas School of Medicine in 1908 and began practice immediately in Salina in association with his father, the late Dr. Winfield S. Harvey. His son, Dr. Ernest Harvey, joined them in practice in 1937. He was a member of the American Academy of General Practice.

E. WENDELL DONALD, M.D.

Dr. E. Wendell Donald, 43, assistant professor of urology at the University of Kansas School of Medicine, died on March 1 after a year's illness. A graduate of the University of Oklahoma School of Medicine in 1942, Dr. Donald first practiced in Caldwell. He went to Kansas City as a resident in 1953 and had been an associate of Dr. William L. Valk in the Section of Urology since November 1956.

HENRY GEORGE HURTIG, M.D.

An honorary member of the Washington County Society since 1951, Dr. H. G. Hurtig, 73, died in a Beatrice, Nebraska, hospital on February 20. He had practiced in Hanover for 35 years before his retirement in 1948 because of illness. He was a graduate of the Creighton University School of Medicine and had had additional training in surgery in Vienna.

A physician who was recently released from duty with the Navy at Camp Lejeune, North Carolina, **Dr. R. D. Snodgrass**, has begun practice in Humboldt in association with **Dr. Charles E. Vestle**. He is a graduate of the University of Kansas School of Medicine.

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**Dr. Harold Neufeld**, formerly of Kansas City, is now practicing in Wamego in association with **Dr. Eldon W. Christmann**.

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The Barton County Medical Society appointed **Dr. Robert C. Polson**, Great Bend, to serve as its representative in American Red Cross activities in 1958.

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**Dr. F. P. Thornton, Jr.**, Concordia, recently became a diplomate of the American Board of Internal Medicine.

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"Pathology of the Breast" was the subject chosen by **Dr. William J. Reals**, Wichita, for an address before the Butler County Medical Society on March 10.

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**Dr. James W. Neumann**, who had been practicing in Nevada, Missouri, moved to Garden City last month and is now practicing there.

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A feature story about **Dr. Lee O. Forney**, Hutchinson, was carried in the *Hutchinson News-Herald* recently as a tribute to a "country doctor" who began practice there in 1905.

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**Dr. Kenneth Dellett**, a 1955 graduate of the University of Kansas School of Medicine who was recently discharged from the Navy, has begun practice in El Dorado.

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"Teen Age Obstetrics" is the subject of a paper written by **Dr. J. S. Menaker**, Wichita, and published in the February issue of *Pediatric Clinics of North America*.

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**Dr. Frank A. Moorhead**, Neodesha, addressed the Rotary Club in his home city recently on the subject of "Health of the Nation, Past, Present, and Future."

The Osawatomie State Hospital announces the appointments of **Dr. Leroy Alcox** and of **Dr. Kenneth Loach** to its staff. Dr. Alcox is a graduate of the University of Kansas School of Medicine and Dr. Loach, a native of England, received his medical degree from the University of Durham in 1951. He had recently been assistant resident in internal medicine at Bellevue Hospital in New York City.

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**Dr. Eugene B. Winchester**, Wichita, has opened an office in Mulvane.

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**Dr. Ernest W. Crow** and **Dr. E. S. Brinton**, Wichita, were two of a group of speakers who discussed "Responsibilities of Controlling the Cost of Group Health Care Programs" at a session sponsored by the University of Wichita College of Adult Education recently.

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A community dinner last month paid tribute to **Dr. Bert Anderson**, Victoria, who has practiced in the Victoria and Ellis community for more than 45 years.

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**Dr. D. Cramer Reed**, Wichita, recently became a diplomate of the American Board of Urology.

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The *Kansas City Kansan* last month carried a story on **Dr. George M. Gray** on the occasion of his 102nd birthday.

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**Dr. Henry S. Blake**, Topeka, discussed medical legislation before the Optimist Club in his home city on March 7.

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Plans to practice in Enterprise have been announced by **Dr. Roger D. Warren**, who is now serving his internship at Bethany Hospital, Kansas City. He is a graduate of the University of Kansas School of Medicine.

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The Larned State Hospital announces the appointment of **Dr. Vernon Jobson** to its staff. Dr. Jobson, who has been in practice three years, is a native of England and has had 18 months experience in psychiatric hospitals in Preston and Wigan, England.

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"Man of the Week" was the title conferred on **Dr. David R. Davis**, Emporia, by the *Emporia Gazette* last month.

## COUNTY SOCIETIES

Dr. Maxwell M. Wintrobe, Salt Lake City, addressed the Sedgwick County Medical Society on "Effects of Modern Drugs on Blood and Bone Marrow" at a meeting held in Wichita on March 13.

A meeting of the Shawnee County Society was held in Topeka on March 3. Dr. Peter E. Hiebert, Kansas City, discussed "Radiation Hazards," after which Dr. Thomas R. Hood, Topeka, spoke on "Public Health Aspects of Radiation." Dr. Lucien R. Pyle reported on the conference of county society officers held in Topeka on March 2.

## BOOK REVIEWS

*Office Gastroenterology.* By Albert F. R. Andresen, M.D. Published by W. B. Saunders Company, Philadelphia. 707 pages, 110 figures. Price \$14.

Many physicians have looked forward to the publication of this book by one of the deans of American gastroenterology. Doctor Andresen states in the preface that this is a practical monograph which presents simple and specific information regarding gastrointestinal diseases and their treatment. It is a summary of experiences representing 40 years of teaching gastroenterology to students, interns, and physicians in the Long Island College Hospital (now State University of New York, College of Medicine at New York City).

To this reviewer the book is a readable monograph replete with practical suggestions for diagnosis and treatment, and it is spiced with the emphatic opinions of a master clinician. The format and illustrations are excellent.

The book is divided into five sections. Section One covers the general concepts of gastrointestinal physiology, pathology, and treatments and also contains a useful section on dietotherapy. Section Two is devoted to a survey of diseases affecting the entire gastrointestinal tract such as the intoxications, inflammations, allergy, and malabsorption syndromes to mention a few. Section Three takes up specific disease syndromes affecting different parts of the gastrointestinal tract. The portions devoted to peptic ulcer, the symptom complex of esophageal disease, and the section on ulcerative colitis are especially worth thoughtful scrutiny. On page 406 Doctor Andresen confronts the question of chronic appendicitis and states why the diagnosis is justifiable under certain situations.

There follows a common sense discussion of the diseases of the rectum and anus which will appeal to the harried physician beset by these important problems of everyday practice.

Section Four is devoted to the liver and biliary tract and in the reviewer's opinion does not meet the standards of the preceding sections although the discussion of virus hepatitis and cirrhosis is stimulating. The last section contains a brief discussion of the interrelationship of general diseases with manifestations in the gastrointestinal tract. Here the discussions pertaining to the cardiovascular system and genitourinary tract are worth perusal.

Physicians acquainted with Doctor Andresen's publications will find again his emphasis on the importance of gastrointestinal allergy which he estimates is the etiological factor in ten per cent of patients with gastrointestinal disease and must always be ruled out in the malabsorption syndromes, ulcerative colitis, and pruritus ani. Rules for the recognition and treatment of gastrointestinal allergy are presented in a detailed and explicit manner. The book evokes the shades of Frank Billings with its emphasis on the importance of focal infections in the recrudescence of peptic ulcer, ulcerative colitis, and other syndromes, and many readers will disagree with this concept. Doctor Andresen has a poor opinion of the psychosomaticists who treat gastrointestinal symptoms without first ruling out organic disease. He cites numerous examples to demonstrate the point that the stress of neglected organic disease was the cause of psychogenic disability and the latter disappeared when proper treatment was instituted. The author condemns indiscriminate medication and points out the hazards and the masking or aggravation of symptoms from such common drugs as rauwolfia, meprobamates, chlorpromazines, antibiotics, anticholinergics, and steroids. His indications for these drugs are limited and specific. This is a good book.—C.J.W.

*Drugs: Their Nature, Action and Use.* By Harry Beckman, M.D. Published by W. B. Saunders Company, Philadelphia. 728 pages, 126 figures. Price \$15.

Dr. Beckman has established an enviable reputation for himself because of his ability to relate the basic actions of drugs to their therapeutic application and because of his lively literary style and sparkling wit. For many years, and through many editions, his books on therapeutics in general practice enjoyed a remarkable popularity, and more recently his editorial notes in the *Yearbook of Drug Therapy* have been a popular feature of that publication.

For some time the dominant textbooks of pharmacology for medical students have been enormous



tomes which are exceedingly expensive and which are discouraging to overworked medical students because of the utter impossibility of reading more than a fraction of the material in the time available. True, the large volumes have been well written and have served a definite purpose as reference books both for students and for physicians, but many students and teachers alike have wished for a volume of more modest size which would make available a thorough background of basic pharmacological concepts together with adequate coverage of important drugs and their clinical applications. Dr. Beckman, with his manifest talents, would seem to be the logical person to write such a textbook. The present volume is his offering in this field, and it is disappointing to be forced to report that it falls short of what many have come to expect from the author—but then that is quite a bit!

The first nine chapters are devoted to basic considerations in pharmacology and pharmacotherapeutics, and the remainder of the book is divided according to drugs that act on the various systems. The organization appeals to this reviewer more than that of other textbooks of pharmacology.

The arrangement of each chapter is more appropriate for practicing physicians than for medical students because the early paragraphs are devoted to the preparations and dosage of the drugs and their clinical effects, while the nature and mechanism of the action is taken up later. This sort of arrangement is not going to appeal to many teachers and may interfere with its acceptance as a textbook for undergraduate students. Even more important in this regard is the ill-advised use as end papers of a chart of infectious diseases with the pharmacologic agents preferred in each. The chart, besides being inaccurate in some details and not strictly up to date, is an invitation to the medical student to adopt an empirical approach to therapy.

Aside from its usefulness as a textbook for medical students, and notwithstanding the author's statement that that is its purpose, this is a volume which should be useful as a review of therapy for practicing physicians and as a reference on pharmacology as it relates to therapeutics. Indeed many sections of the text are taken verbatim from the author's earlier book, *Pharmacology in Clinical Practice*, and it would be surprising if it did not enjoy considerable popularity among physicians.—J.D.R.

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*Abnormal Labor.* By L. A. Calkins, M.D. Published by Charles C Thomas, Springfield, Illinois. 70 pages. Price \$2.75.

This is a brief but complete discussion of management of the three stages of labor. The author discusses each stage separately, presenting the many vari-

ations from normal, how to detect them, and their proper management. His more detailed comments on prolonged labor listing the many factors involved and their treatment is particularly valuable. Many of his suggestions as to care of the patient can be well applied to normal as well as abnormal labors.

I feel one of the best compliments I could give the book is that it is practical along with being brief, which makes it an excellent reference for quick consultation. I would recommend the book very highly; in fact, I would strongly suggest that it be read by all physicians doing any obstetrics.—R.G.H.

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*Gynecological and Obstetric Pathology with Clinical and Endocrine Relations.* By Emil Novak and Edmund Novak. Published by W. B. Saunders Company, Philadelphia. 650 pages, 683 illustrations, 25 in color. Price \$14.

This is the fourth edition of one of the classics of gynecologic literature. Little can be added to the kudos it has received. If one knows all that is in this book, he knows about all there is to gynecology. Its appearance warrants attention, however, as a landmark inasmuch as it is Emil Novak's final one and a fitting memorial. His son, who shares the authorship of this volume, rightly recognizes that changes will ultimately be wrought in the book and makes clear in his preface that this and the previous editions will occupy their own unthreatened place.

The book itself has received wise editing over the years. Certain parts have been eliminated. Others have been added or amplified. Particularly, obstetrical pathology has received increasing attention. Robert E. L. Nesbitt, M.D., has rewritten and added much of this. A section on cytopathology has been added, being written by John K. Frost, M.D. It is well done, and it should be interesting to watch this section grow.

Emil Novak's energies and personality contributed immeasurably to the elevation of gynecology from a position of lucrative stepchild of general surgery to one of dignity in its own right. His wisdom of observation, clarity of statement, and irrepressible humor will be missed.—D.E.G.

### A Good Medical Journal

A good medical journal, according to Dr. Morris Fishbein, former editor of the *Journal of American Medical Association*, has three attributes: (1) It is read, and the reader keeps on reading it; (2) Its circulation is beyond the captive circulation; and (3) It exercises a certain amount of leadership of the profession in improving standards and quality of medical service and availability of medical service and medical instructions.

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## Cervical Spine Fusion

### *Treatment of Forward Fracture-Dislocation*

JOHN F. THURLOW, M.D., *Hays*

During the past several years, we have had occasion to treat 26 forward fracture-dislocations of the cervical spine. It was felt necessary in four of these cases to perform cervical spine fusion to restore stability. We would like to report these four cases, although the number is small, in order to point out that the procedure may be a useful adjunct in the treatment of the severe case.

Fusion of the injured and adjacent cervical vertebrae in the treatment of forward fracture-dislocation is not new. An attempt at internal fixation of the cervical spine was made in 1891 by Hadra,<sup>1</sup> who lashed the cervical spinous processes together with wire. In 1937, Ryerson and Christopher<sup>2</sup> reported a case in which they obtained fusion of the cervical spine by means of wire fixation and bone graft.

The principal contribution on this subject was made in 1942 by William A. Rogers<sup>3</sup> of Boston. He reported 11 cases of forward fracture-dislocation of the cervical spine in which it was necessary to stabilize a segment by osseous fusion. Rogers emphasized the necessity for preliminary skeletal traction by means of skull tongs. He also recommended the use of endotracheal anesthesia for the fusion.

In connection with the use of endotracheal anesthesia we would like to point out a report by Frederick A. Fender<sup>4</sup> of San Francisco. Fender pointed out that after injury of the cervical spine, quadriplegia from massive disk herniation could occur as a result of intubation. This was proved by autopsy in one case.

Our method of treatment differed from that of

Rogers in three respects. First, we were able to effect reduction by skeletal traction prior to surgery, so that open reduction was avoided. Second, we did not employ wire fixation of the vertebrae to be fused. Third, we employed local anesthesia in carrying out the fusion although at the outset we were not aware of Fender's experience.

Local anesthesia in exposing and fusing the cervical spine has proved to be unexpectedly satisfactory. Our

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**The important consideration in forward fracture dislocation is maintenance of the integrity of the cervical cord and spinal nerves. The use of traction with skull tongs provides safety in this regard, makes the patient comfortable, and usually brings about reduction. When there is considerable damage to the injured vertebra, with instability, free fragments, or long continued dislocation prior to treatment, cervical spine fusion may be necessary to prevent recurrence of deformity and return of nerve pressure symptoms. Fusion can be done with greater safety under local anesthesia. Fusion of a segment of the cervical spine is readily obtained, using iliac bone, does not increase duration of hospital stay, and assures stability and continued freedom from pain and eventual degenerative change. The limitation of motion resulting is not considered by the patients to be disabling.**

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Presented before the Orthopedic Section, Kansas Medical Society, Hutchinson, May 1955, and before the Kansas Chapter, American College of Surgeons, Great Bend, September 15, 1957.

experience in this small number of cases indicated that it was of definite help to have the patient's comments on the effects of pressure in the area of the cervical spine being exposed. Pressure on the dural sac can thus be avoided. The procedure under local anesthesia was tolerated remarkably well.

### Indications

It is our feeling that fusion of the injured and adjacent cervical vertebrae is required in three varieties of forward fracture-dislocation. In general, these are those in which the greater instability and likelihood of pressure on the dural sac and cord exist.

The first type of case in which we believe fusion is advisable is that in which there is definite comminution and compression of the vertebral body. Here fusion may be necessary to prevent recurrence of flexion deformity following discontinuance of immobilization.

The second type of case in which fusion is felt to be advisable is that in which the posterior elements of the injured cervical vertebra are detached from the vertebral body so that there is random movement of the vertebral body and the free posterior elements.

The third indication for cervical spine fusion is a dislocation of long standing. These are prone to recur in spite of long continued immobilization.

### General Treatment Plan

Our plan of treatment was to institute traction in some form as soon as possible after the patient is first seen. Skeletal traction is applied after satisfactory films are obtained. We prefer the use of Barton skull tongs and the Stryker frame, the head of which is elevated. The tongs are made fast to the head of the frame to create traction by the weight of the patient's body. This permits turning of the patient and facilitates his care. The amount of traction is varied by raising or lowering the head of the Stryker frame. Raising or lowering the patient's shoulders permits one to vary the degree of flexion or extension of the neck.

We have employed a pull in the line of deformity at the outset, gradually bringing about a small degree of extension as portable x-ray films indicate improved position. In the cases discussed in this paper, traction brought about a satisfactory reduction in periods varying from five days to four weeks. After reduction was obtained, as indicated by films, it was tested by gentle extension of the patient's neck by elevation of the shoulders. If no paresthesia or discomfort resulted from the extension, it was felt to be of sufficient stability for carrying out fusion.

To carry out cervical spine fusion on the conscious patient requires attention to some minor but important details. Transfer to the prone position on the surgical table must of course be done with continued

traction and without flexion or extension of the neck. There must be a comfortable support for the face, a degree of immobilization of the head, no interference with breathing, and a provision for continuing traction during surgery. We found the McBride frame for low back surgery useful for this purpose. The Stryker frame may also be used as an operating table but must be elevated to a satisfactory working level.

The patient's back was prepared and bone was obtained from the ilium, using 1 per cent and 1/2 per cent procaine. These cancellous bone strips were set aside, the donor site was closed, and the cervical region was infiltrated with procaine over the area for which exposure was desired.

When we approached the deep cervical fascia, 1/2 per cent procaine was infiltrated in the cervical muscles and down to the laminae. These were cleared with sharp and blunt dissection in the region felt to be the site of injury. A clip was placed on the first spinous process which was exposed, and a lateral x-ray was taken for identification; this is a necessary precaution to be certain of fusing the vertebrae which require it. After complete exposure of the affected vertebrae, and the laminae of the adjacent vertebrae, those are roughened with the Hibbs gouge or rongeur. It may not be possible to turn up bone fragments on the injured vertebra, as the laminae may be loose. The cancellous bone strips are then laid across the roughened laminae, bridging the injured and adjacent vertebrae. The spinous processes are then freshened and a graft is laid over them. Wire was not used to obtain any part of the fixation in our cases, although this has been the practice elsewhere.

The cervical fascia was then sutured over the grafts, and the closure completed to the skin. The patient was immediately returned to the Stryker frame, and traction was continued.

### After-Care

Traction was then continued for varying lengths of time, according to the requirements of the individual case. After three or four weeks, on the average, a cast was applied. The patient was then allowed to be up and was discharged from the hospital.

The cast was removed when x-rays seemed to indicate that fusion was firm, which was usually in three months. A cervical brace was then substituted. Further consolidation of the graft was then allowed to take place before removal of this protection.

### Case Reports

Case 1. This patient, a 30-year-old racing driver, was injured July 22, 1952, when his car overturned in a race. On regaining consciousness, he noticed weakness of the right arm and difficulty in voiding.

He was transferred to our hospital where an exam-



ination showed absence of reflexes in the right arm but no pathological reflex in any extremity. A lateral view of the cervical spine showed a fracture-dislocation of the third cervical vertebra with separation of the anterior and posterior portions of the vertebra (Figure 1).

The antero-posterior view of the cervical spine showed a defect in the right lamina of the third cervical vertebra and an avulsion of the right first rib, which accounted for weakness and hypesthesia of the right arm. Skull tongs were applied on the day following admission to the hospital, but he continued to require catheterization.

After four days of traction with skull tongs on a Stryker frame, there was some improvement in the alignment of the cervical spine. Traction was continued with the equivalent of 15 pounds of weight and he regained his ability to void, although return of function in the right arm was slow.

After four weeks of traction, there was a more nearly normal relationship of the third cervical body with that of the second and fourth. An additional two weeks was allowed to elapse, however, before spine fusion was done so that there would be less tendency to free movement of the posterior elements of the vertebra. Six weeks after the accident, he was taken to surgery where fusion was carried out. With pressure of the gouge on the third cervical lamina, there was complaint of tingling in the upper and lower extremities. It was possible to roughen the lamina, however, with short, quick taps on the gouge. The procedure was slow and difficult in this case because of bleeding, and it required three hours. There was moderate shock. There was some swelling of the neck for the first few days following surgery, but the patient was comfortable. He remained in traction for

four weeks, when a cast was applied and the tongs removed. He got up in the cast, and slight flexion deformity reappeared at the site of injury, but we felt it to be insufficient to prevent a good result. He was discharged from the hospital one month after operation.

Figure 1 shows the fusion present three and a half months after operation. The cast was removed two and a half months after its application, and there was then fairly solid union between the second, third, and fourth cervical vertebrae. He wore a protective cervical brace until February, 1953, at which time he was discharged as recovered. There was still slight residual arm weakness, but he passed an examination as a police officer. He had no discomfort but there was slight restriction of neck motion in flexion and extension, as would be expected.

Case 2. This 19-year-old boy was injured in an automobile collision in July, 1950, and complained of tingling in the fingers of his right hand. A lateral view of the cervical spine showed a comminuted fracture of the fifth cervical vertebra (Figure 2), with dislocation and encroachment on the spinal canal. There was no neurological deficit. Barton tongs were applied, using conventional traction with the patient in bed, the head of which was elevated.

After three days of traction, the height of the vertebral body was restored and we decided to carry out cervical spine fusion with local anesthesia, which was done 12 days after the accident. After this surgery the patient was placed on the Stryker frame, and traction was continued for six weeks. A cast was applied and he was discharged two months after the accident. The cast was removed four months after the injury. He wore a brace for approximately ten weeks; then he



Figure 1, Case 1. The antero-posterior view shows a fracture of the right lamina of C-3. Avulsion of the right first rib is also seen in this film. The lateral view shows the detached vertebral body of C-3 shifted forward and rotated. The second lateral view shows the postoperative alignment and fusion mass.

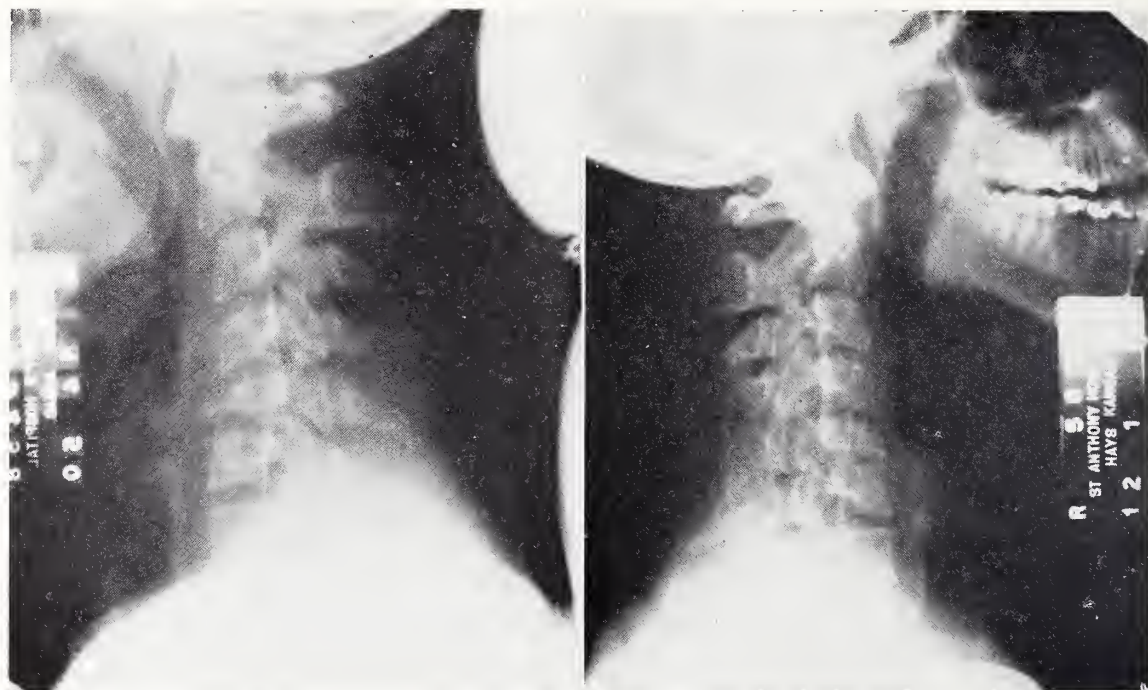


Figure 2, Case 2. On the left, comminution of the body of C-2 and encroachment of the fragments on the spinal canal are evident. The second lateral view shows the fusion obtained (Dr. Moore's case).

was discharged. The patient was not seen again until December 1, 1953.

He was then in a Marine uniform with overseas ribbons, having seen combat service in Korea. Figure 2 shows the fusion obtained. He had no complaints, had not been inconvenienced by his fusion, and was no longer aware of having any limitation of neck motion.

Case 3. A 22-year-old housewife was injured on June 17, 1951, in a car which overturned. At a nearby

hospital she was found to have a fracture of the right forearm and of the left clavicle. These fractures were treated, but the cervical spine injury escaped notice in spite of the fact that films of the neck were made. She complained of increasing neck pain which had become severe five weeks after the accident and was forced to rest in bed frequently to relieve it.

We first saw her three months after the accident. At that time her cervical spine injury had been discovered. She then complained of stiffness of the neck,

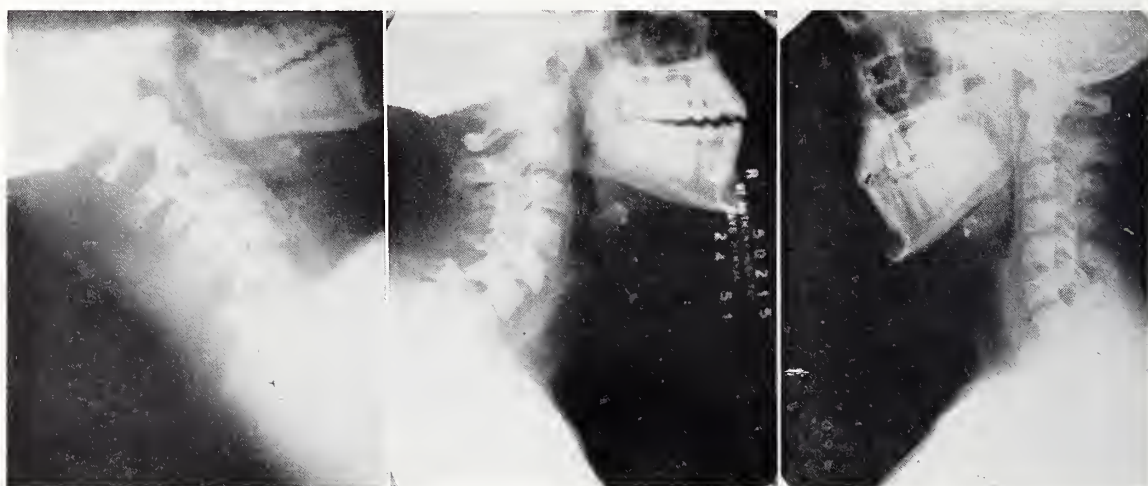


Figure 3, Case 3. At the left, the patient is attempting flexion of the neck; in the second film there is an attempt at extension; in both views fracture-dislocation at C-6-7 is evident. On the right are seen the postoperative alignment and the fusion of C-5-6-7.



pain in the back and legs with flexion of the head, and neck discomfort on attempts to extend the neck. Examination showed slight inequality of reflexes and a questionably positive left Hoffmann reflex. There was extension of the toes on stroking the left shin, but the Babinski sign was bilaterally negative. Films were taken in flexion and extension, and Figure 3 shows efforts to flex and extend the neck.

A dislocation between the sixth and seventh cervical vertebrae is evident. It can now be seen also that there is detachment of the spinous process from the body and articular processes of the sixth cervical vertebra. We advised skeletal traction but doubted that this alone could effect reduction. Tongs were applied and the patient was treated on a Stryker frame.

After four days of traction there was some improvement, and it was felt that one facet might have slipped posteriorly. After one week of traction there was an apparent reduction of the dislocation, and both facets appeared to be reduced. Oblique films were then made, and the impression that reduction of the facets on both sides had been effected was confirmed.

Twelve days after admission she was taken to surgery where the fifth, sixth, and seventh cervical vertebrae were fused with iliac bone. Ten days after surgery the sutures were removed and a cast was applied which, it was felt, would effectively hold the

neck and head in extension and prevent loss of reduction.

She was then ambulatory in her cast but remained in the hospital. She complained of pain in the right shoulder and thorax and of discomfort in the right temporo-mandibular joint. These complaints were eventually relieved and she was discharged to go home seven weeks after admission. She returned as an out-patient in five weeks, bringing films which were taken elsewhere and which showed recurrence of some forward displacement of the sixth cervical vertebra. This required removal of the cast and an additional period of traction of about five weeks. She then wore a cervical brace of the Forrester type. Figure 3 shows the degree of fusion four months after operation. There is slight forward shift of the sixth on the seventh cervical vertebra, but stability has been regained.

She was completely relieved of her arm complaints and did not feel that she had any noticeable degree of restriction of neck movement.

Case 4. This patient was a 26-year-old stockman who fell asleep at the wheel of his car and collided with a building in August, 1951. He was unconscious for a time. On regaining consciousness he complained of pain in his right shoulder. There was difficulty in voiding, lasting several days. We first saw him a week after the injury. There was no discernible neurologi-

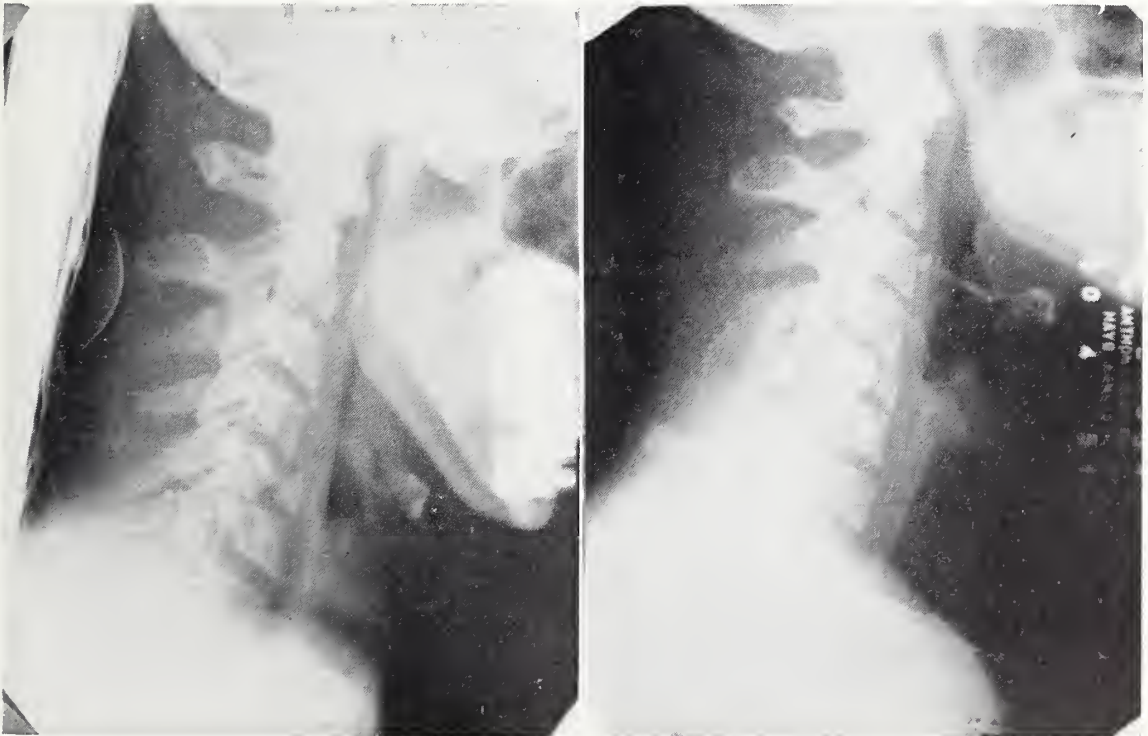


Figure 4, Case 4. At the left, the fragmented body of C-5 is seen prior to treatment by traction; the body of this vertebra is shifted toward the spinal canal. In the second film, postoperative alignment and fusion between C-4-5-6 are seen.



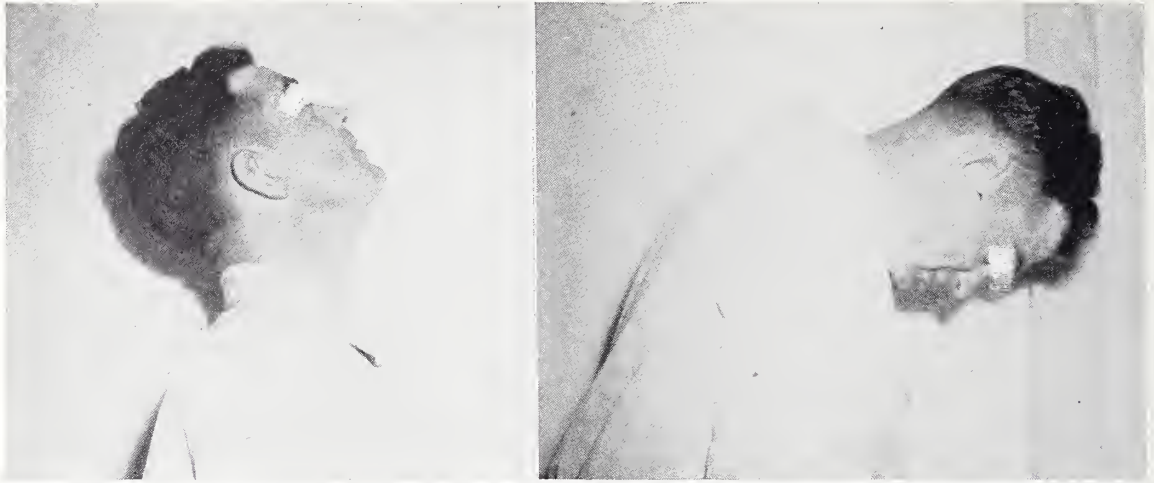


Figure 5, Case 4. Photographs showing the range of flexion and extension following fusion from C-4 to C-6 inclusive.

cal deficit. Figure 4 shows a comminuted fracture of the fifth cervical vertebra and the posterior shift of the vertebra so that it intrudes on the spinal canal.

The traction rapidly improved the alignment of the cervical spine. Extension was then gradually increased by elevating the shoulders. The complaint of pain in the right shoulder and arm subsided. Eighteen days after admission, cervical spine fusion was done, bridging the fourth, fifth, and sixth cervical vertebrae with iliac bone. Traction was continued on the Stryker frame for four weeks after operation, when a cast was applied and he was discharged from the hospital. Three and one-half months after fusion the cast was removed. He wore a brace for a few weeks. Figure 4 shows the degree of fusion which was obtained. This film was taken a year after operation. He had carried on full farm work since the time we had last seen him and had had no discomfort in the neck or arm.

Figure 5 shows the range of extension movement in this patient after fusion of the fourth, fifth, and sixth cervical vertebrae.

### Conclusion

1. Skeletal traction should be instituted as soon as possible after injury of the cervical spine. It may im-

prove position or even bring about reduction after long delay in beginning treatment.

2. Cervical spine fusion can be helpful in restoring stability to the damaged cervical spine, but it should be delayed until maximum improvement in alignment has been effected by traction.

3. Continued traction for not less than four weeks following surgery is advisable, after which a cast or an accurately fitting brace can be used to get the patient up and about.

4. Immobilization can later be provided with a cervical collar, and it should be continued for at least four months after surgery.

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Profit is a must. There can be no security for any employee in any business that doesn't make money. There can be no growth for that business. There can be no opportunity for the individual to achieve his personal ambitions unless his company makes money.

—Duncan C. Menzies

# Carcinoma of the Male Breast

## *Papilliferous Cystadenocarcinoma*

RALPH R. MELTON, M.D., *Marion*

A cyst of the male breast is extremely rare. Approximately 1 per cent of all carcinomas of the breast occur in males. Since it occurs infrequently, it arouses considerable interest when it is diagnosed and stimulates a desire to share that interest with others.

This is especially true when the tumor is of enough size to photograph well. Good clinical photographs were obtained of the case herein presented. It is rather unusual for a surgical delicacy to be permitted to attain such glorious proportions unmolested under the assumption that because of the patient's age, no harm would come from it. The presentation here, with photographs, may stimulate interest in the examination of the male breast and in other medical rarities that occasionally are encountered in a general practice.

*Case History.* A 79-year-old white male, a retired farmer, presented himself on August 4, 1953, with a chief complaint of swelling in the left breast which had gradually enlarged since 1946 and was irritated by his clothing. An occasional sharp pain had shot through it during the past six months. The only history of injury was that when he was a young man he had been kicked in this area by a horse and the hoof print remained for several days.

*Personal History.* He usually felt well except for some heart trouble (irregular) for several years for which he was taking aminophylline. It was also reported that he had suffered a slight stroke in June, 1953. He had been under treatment by his physician for these various ailments since 1949. No hormones had been given for prostate or breast.

*Family History.* No history of cancer had been reported in his family.

*Physical Examination.* Except for some arteriosclerotic changes, slight parkinsonism, slurring of speech, and a slight irregularity of his heart, the physical examination was negative. Blood pressure was 140/90, pulse 80, regular. He was rather obese. The prostate was enlarged 3 plus. The left breast was enlarged 8 x 7 x 4 cm. and was pendulous, the skin was thinned and bluish. The breast was transilluminated. The swelling was fluctuant, movable, and discrete. The nipple was retracted and adherent, and there was no discharge. There were no palpable lymph glands. The right breast was larger than usual.

*Surgery.* A mastectomy was performed under 1 per cent procaine.

*Pathological Report.* The specimen consisted of an elliptical piece of skin which measured 11 cm. by 8 cm. The center of the skin was occupied by a mamilla. There was an abundance of subcutaneous tissue attached. The consistency of the specimen was soft. On cut section, there was a large cyst within the subcutaneous tissue which was filled with a brownish

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**Carcinoma of the breast is infrequent in males. Approximately 1.24 per cent of all breast carcinomas occur in the male breast. Approximately 20 per cent have a five-year survival after treatment. Regional metastasis is of high incidence at the time of consultation. Treatment of choice is radical mastectomy. Orchiectomy, radiation, and hormones (stilbestrol) are palliative in far advanced cases.**

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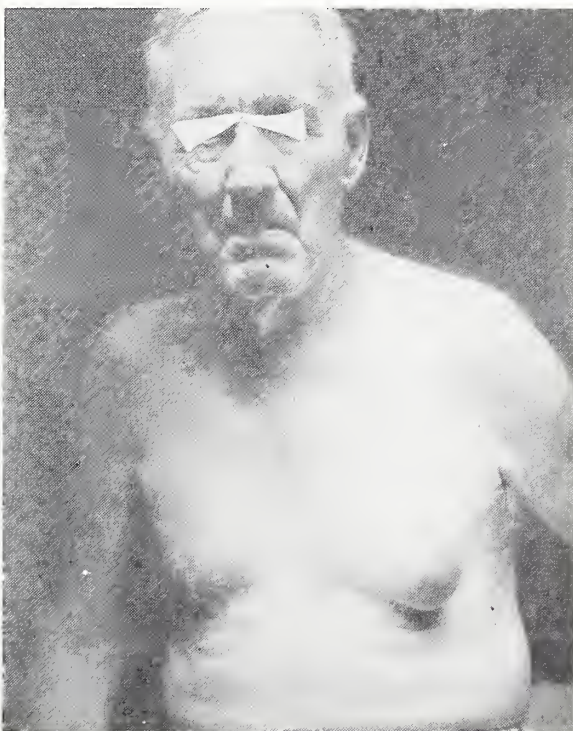


Figure 1. Papilliferous cystadenocarcinoma of the breast.



gelatinous material. The wall of this cyst showed a papillary tumor which was brownish red and measured approximately 1 cm. in thickness.

*Microscopic Examination.* Sections of the submitted lesion taken from the wall at the site of the grossly papillary structure showed the wall to be composed of a dense fibrous and collagenous connective tissue. The lining was formed by columnar epithelium arranged in elongated papillary structures with a stalk of fibrous connective tissue. Adjacent to these were irregular glandular structures which were lined by epithelium arranged in papillary formation. There were focal deposits of deeply basophilic calcified material within the tumor. The individual cells had small, round to oval nuclei and an abundance of granular, well defined eosinophilic cytoplasm. Moderate numbers of mitotic figures were identified. There was variation in the size, shape, and staining reaction of the individual tumor cells.

*Pathological Diagnosis.* Dr. W. P. Callahan, Jr., Wichita pathologist, gave a diagnosis of papilliferous cystadenocarcinoma of the breast.

*Postoperative Course.* Other than being confused at times, the patient's postoperative period for the first seven days was uneventful. The wound was healing nicely and the sutures were removed. The seventh night, in trying to get back in bed, his wound was

avulsed. This was repaired. He was released to go home and return to have the sutures removed later. He recovered nicely without x-ray therapy. He died on October 17, 1957, with no evidence of recurrence or metastasis. Death was attributed to "several light strokes."

*Review.* Approximately 0.14 per cent of all cancer in males is due to carcinoma of the breast. According to Neal, 1.24 per cent of all carcinomas of the breast occurred in males in his review of 9,279 specimens. The average age is around 57. Sachs reported a case in a boy of 12, and Wainright reported one in a man of 91. The etiology is presumably that of carcinoma occurring in other parts of the body; however, during the past few years, an occasional case has been recorded in which carcinoma of the breast has developed in patients receiving stilbestrol therapy for carcinoma of the prostate. The same also has been reported as developing in women undergoing prolonged stilbestrol therapy for menopausal symptoms. Both of these conditions are subject to the possibility of coincidence, however. Some authors have maintained that development of carcinoma is most probably due to estrogenic treatment. This is doubted by others of equal authority.

It is interesting that carcinoma of the male breast was noted by Ambrose Pare in the 16th century. The symptoms are similar to those of carcinoma of the female breast. Sachs reviews the symptoms of 205 cases. The following was noted: retraction of the nipple, 33.1 per cent; pain in the breast, 38.1 per cent; bleeding from the nipple, 14.5 per cent; ulceration, 20.6 per cent. Presence of a mass in the breast is found in approximately 50 per cent.

The prognosis, as set out by Wainright's work in 163 cases, showed only 19 per cent survival after five years. Sachs, at the other extreme, in his study of 205



Figure 2. Lateral view, papilliferous cystadenocarcinoma of the breast.

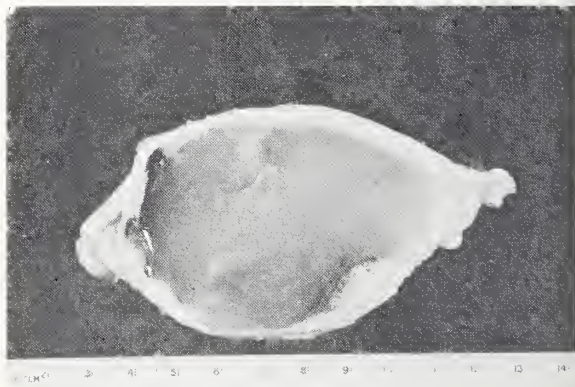


Figure 3. Section of specimen showing papilliferous cystadenocarcinoma in the male breast.



cases showed a five-year survival of 47.8 per cent. In spite of the wide variation in these two studies, the over-all survival in other reports keeps the average at around 20 per cent after five years. This is much poorer than the survival rate in females. This may be explained by the failure of the patient to recognize the symptoms and the failure of the physician to recognize the potentialities of a mass in the male breast with its scant breast substance for surrounding extension before metastasizing.

In Sachs' cases (205), 46 per cent had axillary involvement. Neal's cases showed 32 per cent involvement of axillary and regional nodes when first examined. The duration of symptoms before seeking medical aid in Sachs' cases was an average of 1.14 years. In Gilbert's cases (47), the time elapsed between symptoms and seeking medical aid was 2.05 years.

Other tumors of the male breast to be considered when a mass is encountered are: abscess or other inflammation producing either acute or chronic mastitis, gynecomastia, or mammary hypertrophy. Cysts are extremely rare. Other rare lesions are sebaceous and dermoid cysts, hemangiomas, lipomas, and lymphangiomas.

### Summary

A case of carcinoma of the breast in a 79-year-old male is reported. The tumor had existed for seven

years. A superficial review of the literature is given. The patient expired four years and two months after the operation, and the cause of death was reported as generalized arteriosclerosis. Physical examination showed no evidence of recurrence or metastasis.

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No group has played a greater part in America than the leaders of industry and commerce. The qualities of those leaders have, however, changed with the times. Each period has had its tensions, and each the men to master them. Today those tensions are greatly compounded by the pace of events. . . . There was a time when a new product hardly affected the household; now business operations may transform the country and indeed, affect the world balance of power.

The fact is, we are not just in business, we are remaking our society, and we are dealing with questions of peace and war.

—John S. Coleman

# Psychiatric Care

## *Benefits Available from Adjunctive Therapists in a Hospital Setting*

RALPH CRAWSHAW, M.D., *Topeka*

A pressing and immediate problem for all concerned with mentally ill patients is learning what treatment they receive in psychiatric hospitals. It is known that a large number of psychiatric patients enter hospitals, receive treatment, get well, and leave. But how a change is brought about defies a ready answer.

We know that tranquilizing pills are given, shock treatment prescribed, psychotherapy carried out, but in few cases do we have a clear understanding of why the patient has changed for the better. Not only do the treatment modalities vary from institution to institution, but also within institutions, from section to section, there may be differences, and from person to person the differences in effective treatment may be great. It is impossible to study adequately all of the available therapies, but attempts can be made to clarify the effectiveness of some.

At the Menninger Foundation we have addressed ourselves to the problem of understanding better one of the accepted psychiatric treatments, adjunctive therapy. We have attempted to clarify what adjunctive therapy is, what it does, and what it should be expected to do. From the experience of our study, I present my idea of the necessary ingredients in effective adjunctive therapy.

Our hospital is a 118-bed, active-treatment psychiatric hospital which carries in addition approximately 40 to 60 day patients. There is an adequate staff of physicians, psychologists, social workers, and nurses, as well as adjunctive therapists. We consider as adjunctive therapists those staff members who are concerned with the activities of the patients which would correspond to their work and play in normal life. They number about 27. Adjunctive therapists include those with training in the manual crafts, sports, recreation, creative arts, group social activities, academic activities, and physical therapies.

As part of a widespread network of projects intended to increase our understanding of adjunctive therapy, the following approach was developed: A working psychiatric team was established about one clinical problem. Thus, it was hoped, a body of knowledge through mutual clinical experience could be developed to define the task of the adjunctive therapist.

The staff psychiatrist, as team leader, chose a patient as the subject and sent a memo to all personnel who might be at all interested in this particular patient. The memo stated that on Thursdays we would hold a luncheon meeting to discuss the patient's treatment. The lunch hour was chosen since in our busy schedule there appeared to be no other time mutually available. It was not obligatory for anyone to come. Our interest concerned those feelings and considerations of the adjunctive therapist which could be given only voluntarily without the implied coercion of a directive.

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**Patients in mental hospitals can often be materially benefited if the services available from adjunctive therapists are fully utilized. Such therapists, as discussed here, include those staff members concerned with the activities of the patients which would correspond to their work and play in normal life.**

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The patient's background is as follows: She is a 34-year-old unmarried woman who came to our hospital in 1956 after seven years of psychotic illness, paranoid schizophrenia. She is the youngest of three children, having two older brothers, both of whom are married and have made satisfactory adjustments. Her father is a retired, successful business executive, and her mother remains active in many social and community affairs.

The patient was a shy, retiring child who made a satisfactory adjustment throughout high school and in college was an excellent student. Following graduation she became a secretary, and while on a trip to Europe with her father she developed her present illness. Confusion, withdrawal, and paranoid thoughts were apparent at the onset. Since 1948 she has been continually under some type of psychiatric treatment, which has included psychotherapy, group therapy, insulin shock, electroshock, and tranquilizing drugs.

When she came to our hospital in 1956 she felt that there was little hope left for her and expected to undergo a lobotomy. She had numerous tics, talked loudly to herself, showed little interest in the world about her, had poor personal hygiene, and was openly

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This work is not connected with the author's present affiliation with the Veterans Administration and was accomplished prior to July, 1957.

psychotic. On a program of milieu therapy, intended to give her structure and to open for her some avenues of gratification, she showed slight improvement. An attempt at psychotherapy was unsuccessful, and our goal in simplest terms was to help her establish herself outside an institution. Rather than to return her to her relative high achievement prior to the onset of illness, our therapeutic efforts were limited because of the length and depth of her illness.

This particular patient was chosen because of our discrete goals, to discharge her from the hospital in a condition which would allow her to maintain herself in a family care home. Second, the patient was well known to the staff. Third, she had not shown any great swings of improvement or regression but had demonstrated only slight improvement. Fourth, she was seen by the staff in so many different ways that no consistent picture of her was being reported.

In the first meeting our clinical team had little difficulty getting started. Some interesting questions came up which apply more to team operation than to the patient. Several wondered what they had done that was wrong. It appears that one of the natural reactions for the staff, upon learning that a meeting has been called, is to feel that they have done something wrong. Another questioned the fairness of spending so much time on one particular patient. Also discussed was the added responsibility that these meetings gave the staff. Though the questions are interesting, they are digressions from our primary problem, which is understanding the adjunctive therapist.

From experience gained at these regular team meetings, we have a clinical impression of adjunctive therapists, how they have succeeded or failed, and we have clearly learned some lessons. First is the appreciation adjunctive therapists have of the importance of their own conduct toward the patient. This is sometimes called "the use of the self." It is not easy for an individual to discuss himself in a group, but we were not long in reaching the point in our team meetings where the adjunctive therapists could ask if they were right or wrong in certain approaches. The emphasis never was on the patient's accomplishment in the craft; it always remained on what the patient was doing with the adjunctive therapist, sometimes directly and sometimes through the craft.

As a result of our team experience, there appear to be certain qualities or principles which can be seen in adjunctive therapists' work. These principles all lead to enriching their relationship with the patient and enhancing treatment.

The qualities which clearly were part of the work of the successful therapist can be placed under two general headings. First is proficiency in his craft, or special skill, and second is a degree of competency in interpersonal relationships, often referred to as

"the use of the self." The first, competency in the specific skill or specialty, is indispensable. If the adjunctive therapist does not know his gross work, he will not be free to go beyond the work in dealing with the patient. The craft should become an ingrained part of the occupational therapist and, as all good tools, a help, not a hindrance, in doing his job. It is not my feeling that the therapist need be competent in all aspects of his field, nor a perfectionist in any particular part; he should be well grounded and secure in the general mechanics of his operation so that he can be free to do his most essential job, working with patients.

Under the second heading, competency in interpersonal relations, the effective therapists were capable of observing in a sophisticated fashion, communicating intelligently, willing to interact with the patient, and possessed of a sense of professional dedication. Rather than leave these qualities as a list of words, we can enlarge upon them from our team's experience.

Observation in its simplest form means merely looking at and listening to what is going on. This is not enough; the therapist should know what he is looking for, and at the same time be ready to see or hear the unexpected. He must know something about the patient, and he must know what the doctor is looking for, as well. One of the reasons the psychiatrist chose the patient was the varied picture she presented to different people, and few realized how differently she was seen by the staff. After a few meetings, they clearly understood that the psychiatrist was interested in knowing how much mumbling and talking to herself the patient did. We came to call this symptom "static," since it literally had somewhat the quality of static on a radio. She could be talking and at the same time carry on a slight undertone of mumbled words. Early in her stay she would do this with the psychiatrist, but as treatment progressed, this symptom left their relationship. He was interested to see where it was still appearing. He was not receiving many reports about this symptom since some of the therapists did not think of the trait as important. They observed it frequently and felt that others did also. Other therapists were not reporting it because it happened infrequently in their contacts with the patient. When they learned that the psychiatrist considered it important as a distorted expression of hostility, they began looking for it in that context. Observation of the patient's mumbling now began to have psychological meaning for them and, more important, gave them a deeper insight into the patient, which in turn allowed for a closer relationship. For the leader to know where the static was occurring proved valuable, since he could continue working with the patient in terms of her presenting symptoms, which superficially she



kept out of their relationship. The observation had gained more meaning for all members of the team.

Another quality of great importance is the ability to communicate freely. Often the therapist feels that he does not have adequate opportunity to communicate since the doctor's ear may not be readily available. This common feeling is best considered by examining carefully what the therapist is prepared to do when he does have the doctor's ear. In our team meeting, we discussed the fearfulness on the part of the therapist to report. The staff, as they grew freer, investigated why the meetings had been called. Were they doing something wrong? The implication they gathered by my request for communications was that they had done something wrong. When someone took an interest in their work, they felt the interest was based on some shortcoming rather than on a genuine desire to implement the patient's treatment. This may not be true of other settings or other teams in our setting, but it was true that our therapists acknowledged a certain defensiveness in their communications.

Another point is to be aware of how much communications can relate to therapists' problems rather than to the patient's problem. Thus, a number of questions asked about the patient and her routine at first glance appeared to be merely inquiries about schedule. It gradually became clear that the question was being asked by the therapist, "Why is the patient not coming to my shop more frequently? Is it because she does not like me?" Again, this was not explicit in the question, but it was the repeated feeling of the therapist in the communication. When he learned that the patient accepted the shop and the work in her own particular fashion, he no longer felt the necessity of asking detailed questions about the patient's routine.

Our therapists were also alert to another quality implicit in communication, and that is the idea that communication is two-way. The therapist has to learn what the doctor means when he says certain things. It is important that he remain alert to the doctor's communications so that he can not only understand the concrete suggestions implicit in what the doctor says but also his style; he can know why the doctor says what he says. This implies a certain amount of relaxed interplay between the doctor and the therapist so that the therapist can explore the communications pertaining to the patient.

Still another point connected with intelligent communications is the ability to give unfavorable reports when they are indicated. This was apparent in the reluctance of the group to come to grips early in the meeting with reports that she had not done well. If her difficulty could be connected to a specific incident, a visit from her family, or a premeditated change, the report came easily; however, when the

therapist felt a report must be given in terms of his observations and judgment, it took longer to break the ice. Later, as individuals found the group in accord with their views, exploration of the patient's difficulty never proved hard to carry through. It is necessary for the successful adjunctive therapist to communicate material which may sound unpleasant to others, including figures of authority. If he falters, treatment suffers, and the patient may not improve.

An indispensable quality for success also is a willingness to interact with patients. Somewhere in his makeup, the therapist must be interested in people, how they get well, and what he can do to hasten the process. He need not like all people, nor should he feel that he has to interact with all people. Part of his maturation is his growing awareness that there are some patients with whom he just cannot be useful. With these patients, the work can be left to others. However, to the patients with whom he can comfortably interact, he has the opportunity to be of great assistance.

By "interact" we can mean many things, but a clinical example can serve to clarify our meaning. In dealing with the patient's symptom of mumbling, her "static," the psychiatrist encouraged some of the team to respond directly, remarking on the symptom in a way which would recognize with the patient the presence of the symptom. One therapist was quite reluctant to carry through on the suggestion. He pointed out that she was psychotic and might regress. He wondered whether or not she actually could stand it, and finally said, "I don't know whether I could stand it." He waited a few weeks, and then, after mulling it over, felt a little more comfortable interacting this way with the patient. Quite spontaneously one day, while they were working in the shop together, he found that she was mumbling, and he said, "I know that you are talking, but I can't quite get the words."

The patient's response, the one he expected to lead to regression, was: "Oh, thank you. I know I talk to myself at times and that I shouldn't. I appreciate your telling me."

The patient could accept his intervention, because it came from someone who conveyed in his words, tone, and attitude the genuine interest he had in her. For the therapist it represented a freedom within himself he had achieved by his own work. There was no one there who prompted him in his action; it came spontaneously from his willingness to interact with the patient.

Too often our interactions with patients serve only to infantilize them, and it sometimes is difficult to resist an opportunity for active intervention. Another example underlines the passive aspect of interaction: On a trip to town with an adjunctive therapist, the patient became mildly excited while shopping, and in

the course of paying for a purchase she turned her purse upside down on the counter in her haste to get her money out. The therapist was tempted to intervene immediately and handle the situation for the patient, but because she knew the patient and knew the patient's wish to handle the trip well, she paused long enough for the patient to regain her composure and handle the situation adequately. The interaction in this case was the support the patient felt from knowing that the therapist was standing by to give help if it should be needed. The patient was left with the proper latitude to develop and mature. The therapist had proved herself willing to interact in this way.

The therapist must display a sense of professional dedication. It is a quality which is difficult to pin down, or to teach, and impossible to standardize; yet it is real, personal, and extremely valuable. Though undefinable, professional dedication is part of the "team spirit." It is a sense of professional self-assurance and perspective which not only can be relied upon to carry the therapist through the immediate

problems of patient care but also gives him the long range view necessary for a mature approach.

Our patient has shown improvement. She is now out of the hospital, and a great deal of the credit for this success rests on the shoulders of the adjunctive therapists who have shown not only their skill in a particular craft but also keen observation, intelligent communication, a willingness to interact with her, and a persistent drive to know more about their own jobs, so that they could do them better. In present-day adjunctive therapy, these qualities are essential.

Though settings may differ from hospital to hospital, section to section, it is apparent that those patients who are treated by well qualified adjunctive therapists in conjunction with a psychiatric team can get better. Such therapists make a unique and powerful contribution to the patient's welfare, and the value of their help comes directly from their own high personal and professional standards.

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# Rehabilitation of the Aged

## *Importance of Psychiatry in Treatment*

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Rehabilitation is the process of helping people live more effectively. This is a prime goal of modern dynamic psychiatry as well as physical medicine. While more specifically the focus of the former is on psychological factors and the latter on physical factors, neither specialty can be separated from the other as long as human behavior is involved.

Three other aspects which these specialties have in common are relevant at this time. First, the focus is on the individual and his problems, not on the problems and an individual. Second, the past experiences and performances of an individual are taken into consideration to explain his present behavior, and it is further recognized that the individual has within himself the potential to modify his future behavior. It is only in this sense that psychiatry can be called dynamic. Third, each specialty is multi-disciplinary in approach. This actually is a function of the complexity of human behavior.

In psychiatry, then, we speak of the psychiatric team which combines and coordinates the skills of the psychiatrist, psychologist, social worker, psychiatric

nurse, and aide in understanding the individual and his problems.

This paper is a report of the activities of such a team which makes up the staff of a small, dynamically oriented psychiatric hospital—namely, Prairie View Hospital in Newton. Without each discipline it would not have been possible to have arrived at the conclusions we present here. Our specific interest in the older patient dates back to a staff meeting approximately a year and a half ago in which our aides

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**Outlined here is the treatment given aged patients at Prairie View Hospital in Newton. A team composed of a psychiatrist, a psychologist, a social worker, a psychiatric nurse, and an aide cooperate in achieving the best possible evaluation of the patient's status on admission and in planning a mode of therapy designed to give maximum help.**

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presented for discussion the topic, "How should we treat our elderly patients?"

To approach this question one must first examine the thinking underlying our traditional concepts of the aged. This traditional concept is focused on problems as manifested in symptoms and pathology. The individual with these problems is considered only secondarily.

For a long time such symptoms in the aged as forgetfulness, irritability, loss of interest in self and surroundings, wandering off, disorientation, and depression have been related simply to organic changes in the brain.

The basis for these changes most often was cerebral arteriosclerosis or degeneration of brain tissue due to senility. Disorders of the aged have been described categorically in textbooks under organic psychoses, and in the standard nomenclature they come under the heading of chronic brain syndrome.

Where has this thinking led us? Most simply it has led to stagnation—to a limited, static, and nihilistic approach to the aged, especially where care and treatment are concerned. If one is concerned solely with pathology, it means that treatment to be successful is dependent on eradication of said pathology. Where pathology is irreversible or only partially removable, there is a corresponding limitation to treatment goals. Treatment then becomes, at best, palliative; at worst, nihilistic.

Even more disturbing in some ways is the fact that where success is not expected there are no failures. Without failures, no questions are asked and nothing is learned. Where nothing is learned the cycle is relentlessly repeated.

Doesn't this pretty well characterize the traditional approach to the aged person and his problems? Aren't we all too ready to say, "If your abilities were gradually deteriorating and there were nothing you could do about it, wouldn't you have problems too? Wouldn't you worry about being cared for now and in the future? Feel lonely and an outcast?"

Are not relatives all too frequently told, "This is a case of hardening of the arteries," or "You will just have to learn to live with him or have him put away some place." The aged person then becomes a victim of his pathology: nothing is expected of him and nothing is expected of his family or the physician. In fact, a physician who may offer help may even be considered an opportunist.

Our thesis is not that organic pathology plays no part in the disturbed functioning of the older patient, but rather that organicity fails to explain many disturbances of the aged. For example, there are several studies showing there is no direct correlation between symptoms and certain generalized organic brain changes such as arteriosclerosis or senile deterioration.

The brains of many clinically "normal" aged persons have at postmortem examination shown evidence of considerable pathology. Conversely, some brains of elderly persons with evidences of psychosis have shown no notable organic changes.

Not all aged persons show signs of clinical deterioration, and when such signs appear there is no close correlation with age. Indeed, age is no barrier to continued functioning, as is most clearly seen in the functioning of some of our elder statesmen. To this list of unexplained problems one can add the question of the high mortality rate of recently institutionalized elderly patients or the frequent reports of almost simultaneous deaths of old couples.

It follows that some other thesis must be found on which to base our understanding of the older person and his problems. It must be less rigid, allow for more variables, and be more comprehensive. It needs to provide a broad understanding of the person with emphasis on his abilities to continue growth, even in the face of liabilities that reality may impose.

The rehabilitation outlined in the introduction is such a constructive, dynamic approach. The very core of this approach, though, is exemplified in a stimulating article discussing the treatment of the chronic psychiatric patient in a Veterans Administration Hospital. The author, Dr. Arpad Pauncz,<sup>25</sup> presents five basic principles that relate to every patient. They are particularly appropriate in relation to the aged person and his problems. They are as follows:

1. *"Still normal" aspects of the patient.* No matter how sick physically or psychologically, there are some aspects of the person's functioning that can be considered normal.

2. *To exist is to persist.* This phrase, taken from Spinoza, as quoted by Pauncz, reminds us that sickness is a reaction of the living and evidence of a struggle for survival.

3. *Duties and responsibilities in spite of sickness.* Dr. Pauncz states in regard to this item, "With the assets of the patient goes a limited degree of freedom of choice between his sickness and health and a certain amount of responsibility for his present and future welfare. He can still react to the environment with sometimes astonishing and unexpected display."

4. *Adult characteristics retained in spite of regression.* No matter how regressed a person's behavior may be, it is only "child-like" and not that of a child. Adult assets, though obscured by this behavior, are not obliterated.

5. *Dignity retained in spite of sickness.* Each person is a human being. Illness can and does afford an opportunity and a challenge to be met. The ability to meet challenges on a psychic as well as a physical level is peculiarly human and not eliminated by illness.



This total approach to the aged person and his problems leads to quite a different formulation. Symptoms now become not a by-product of organic pathology but the result of complex internal and external forces—physical, psychological, and sociological. They are related not just to the present, but even more important, to the past.

The individual's reaction to the specific stresses of aging, including organicity, then, is a function of a life-long pattern of reaction. Present symptoms represent a re-activation of old conflicts by new stresses.

This is the key to understanding the aged person. In reality, this is the key to understanding any individual, irrespective of his age. We are saying, then, that one treats an older patient basically no different from any other patient with a long standing illness.

The application of these principles is demonstrated in the following reports of specific cases. In these case presentations the use of a team approach is demonstrated and the role of the psychiatrist, psychologist, social worker, nurse, and aide in evaluation and treatment is shown.

In the first of these cases it should be noted that by careful history taking and subsequent interviews of the closest relative—by a member of the social service department—a real understanding of basic problems involved in the immediate situation can be gained. Through these same contacts plans can be worked out for future placement of the patient which are realistic and based on a good understanding of the patient.

Mrs. D. S., an 80-year old, married, white woman was admitted to the hospital in the summer of 1956. The referring physician reported her arteriosclerotic for many years, but she had recently presented many more somatic complaints and so much agitation that home management was no longer possible. She was admitted for evaluation and possible placement in a nursing home.

Psychiatric examination on admission showed that the patient was extremely agitated, disoriented, and confused. Memory loss was apparent and nocturnal confusion was present.

Physical examination by the medical consultant revealed much generalized arteriosclerosis. There was also a history of heart disease of many years' duration with a vague report of a stroke one month before admission.

On the basis of the initial findings, with a history of an acute disturbance, a diagnosis of toxic psychosis was made. In the meantime the family was seen for interviews by social service. Here it was learned that the patient and her husband were living alone in their own home with an only daughter living near by. The patient depended considerably on this daughter for help in running her own household. The onset of

somatic symptoms in the patient coincided with the daughter's announcement of plans for a long trip in the near future. The patient's physician had to prescribe sedation as the symptoms increased. The sedative turned out to be the cause of her acute psychotic reaction.

The picture became more complete as we learned that the patient had always been concerned about security, financial and otherwise, and that she had always depended a great deal on her daughter and those about her.

Treatment was directed first of all toward management of the acute reaction. As this cleared, the patient then was introduced into the hospital program, which included assuming more responsibility for herself, dressing, caring for her room, work assignments which involved housekeeping chores, occupational therapy, and recreation. She participated in group psychotherapy.

The patient's family was seen by the social worker throughout her hospitalization. Through this means they were able to come to understand their role in the patient's illness and to make plans for her return home. The patient was able to gain sufficiently from this program to become symptom-free and return to her home and make a satisfactory adjustment, as noted by follow-up contact several months later.

In the second case the importance of the role of the psychologist and his psychological testing is clearly demonstrated. It was through such testing that a real appraisal of the problems was started. This patient did not remain in the hospital long enough for adequate treatment, and it can be seen also that the hopelessness in the attitude of the husband and the referring physician were involved in her leaving before adequate treatment could be carried out.

Mrs. Z. C. was a 74-year-old, married, white woman who was admitted in the fall of 1956. The referring physician reported that she was forgetful, not as orderly as before, disagreeable, and could not recognize her own husband. The physician stated, "I am in doubt about her responding to treatment, but her husband wants the best for her." The husband of the patient reported to the social worker that he felt her mental disorder was hereditary since her grandfather and father had had the same difficulty, and he consequently felt little could be done for the patient. He sought her admission only because of his son's insistence.

In her initial interview with a psychiatrist, Mrs. C. appeared to be a sweet, friendly, but confused old lady who offered the physician fifty cents for the collection plate. On the ward she appeared equally confused and incapable. On psychological testing, however, it was learned that there was almost no evi-

dence of organicity in this person. If anything, only minimal memory loss was present. Here the patient was confronted by a new situation where performance and not verbal production was tested. In this unfamiliar medium she had no prepared defenses, and organic brain damage was not found.

On the ward, then, some of her confused statements were challenged, and she was found to be an extremely demanding person who developed temper outbursts and somatic complaints. The social worker also learned that since childhood this patient had always gotten what she wanted by being sweet, but if this failed she would throw a tantrum to succeed. She was "the flower of the family" who did not have to work in the fields as the other sisters did. When her acute symptoms started her husband was in the process of retiring and was planning on spending more time with his wife.

After about three weeks of hospitalization the patient's husband insisted on her release since he felt his wife could not be helped.

In the third case an organic problem was first found and was alleviated through medications. Then an adjustment problem of several years' duration was found which could also be alleviated through a team approach.

Mr. A. J. was an 80-year-old, married, white male who was admitted in the fall of 1956. For a week or so before his admission his wife had noted confusion, especially at night, and wandering away from home. On initial psychiatric interview he appeared to be somewhat resentful of his hospitalization. He complained of poor memory and talked frequently of dying. On the ward his periods of intense confusion were noted to be definite enough so that they could be timed and were found to last from ten minutes to one hour. A diagnosis of a convulsive disorder was made, and treatment with Dilantin was prescribed. Following this the confusion diminished and his hospital adjustment improved considerably.

The social worker learned from Mrs. J. that the patient has always been a successful man who worked hard and educated his children properly. He had been active until seven years prior to admission, when he developed heart trouble and had to cut down on his activities. Since then he had become suspicious and developed many physical complaints, as well as poor sleep habits, all of which his wife found intolerable. This behavior was noted only when he was at home, so it became apparent that his wife also would have to be involved in the treatment program.

The patient was started in individual and group psychotherapy with one of the psychologists. Through therapy for both the patient and his wife, the adjustment of Mr. J. improved.

Psychological testing of Mr. J. revealed intense

organic brain damage when he was admitted. When it was repeated after several weeks, it showed only mild organic damage. In this case the tests were valuable in providing an index of improvement as far as organic factors were concerned.

As we applied these principles to more and more patients our enthusiasm grew. At one point we naively thought we had arrived at a new approach to the aged person. When we turned to the literature we found that for many years articles had been written suggesting that more than organic brain changes are involved in the psychiatric problem of the older patient. In fact, in Ebaugh's article on "Age Introduces Stress Into the Family" in the April, 1956, issue of *Geriatrics*,<sup>9</sup> the author quotes Cicero as saying that "those with simple desires and good dispositions find old age easy to take. Those who do not show wisdom and virtue in their youth are prone to attribute to old age those infirmities which are actually produced by former irregularities."

In a survey made by Dunham and Faris in Chicago in 1939,<sup>11</sup> the authors conclude that "older people in poverty situations and in communities of disorganized family life are more likely to be identified as psychotic cases than those older persons who live in more acceptable economic surroundings and still enjoy a fair degree of familial support."

Similar conclusions were reached by Busse and Bains in a survey they made in 1951.<sup>6</sup> They felt depressions were more prominent in lower socio-economic groups and that aged people requiring hospitalization were almost devoid of any creative or recreational interests. The authors concluded that the adequacy of adjustment in the elderly is largely determined by strengths and weaknesses developed much earlier in life.

Attempts have been made to correlate the degree of brain pathology at postmortem to the severity of symptoms in older patients, as was done by Raskin and Ehrenberg in 1956.<sup>28</sup> They concluded that the degree of brain atrophy was not always indicative of the patient's mental deterioration and made a plea for keeping older persons motivated.

In 1948 Maxwell Gitelson published a comprehensive article on "The Emotional Problems of Elderly People."<sup>15</sup> Here he discussed such elderly people as individuals and suggested that "the mature character of a person determines how he will react to old age." He described various conditions and recommended various therapies, including supportive psychotherapy.

If it has been known for so long that organic brain damage alone is not responsible for psychiatric problems of the aged, why then the widespread feeling that persons over 65 who suffer from mental illness have organic troubles and are incurable? Several articles have been written concerning this negative atti-



tude towards the aging. The authors base this attitude on our own unresolved problems regarding older persons, helplessness, and death. Surely if this stage of life is solely a state of inevitable deterioration, it can be nothing but frightening and entirely negative.

The principles of rehabilitation as outlined here point to a new way of thinking about living and its problems. For the aged person, these principles mean that his life can be more than an existence, more than simply a continuation of living.

For us they mean a change from therapeutic nihilism to therapeutic optimism, as well as pointing the way for future control and prevention of these problems.

Therapy, utilizing these principles, is basically no different from therapy for any other psychiatric problem. The goals may be more limited, but this limitation is a product of the individual and his assets, not determined by his liabilities or pathology. Techniques, in turn, may vary, but here too fundamentals do not change.

In regard to technique, failures in therapy of the older person stem, in a large part, from technical failure—technical failure resulting first of all from not taking these patients seriously and second from moving into a complex field without sufficient help. Sufficient help means to us the coordinated team approach to treatment.

A word on prevention: If we can say that a relatively high degree of maturity is the best insurance in meeting the stresses of later life, just as it is for other periods of life, prevention then becomes a matter of fostering maturity, earlier. This subject is not in the province of this paper.

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## PRESIDENT'S PAGE

DEAR DOCTOR:

Rarely, in the span of a single life, do signal honors arrive. When they do, the usual phrases, with which we note them, seem trite. Please know that I am humble in the face of the splendid leadership this Society has enjoyed in the past, and that I pledge you my best efforts in the year that lies ahead.

I hope that all of you have read carefully Dr. Nelson's message on the President's Page for April. He speaks with clarity and comprehension of the role of our profession in the world today. It is the deep conviction of many of us that the statesmanship of tomorrow will come, in increasing measure, from the American physician, who honors the freedom and dignity of every man he serves.

Those of us so fortunate as to live in the Middle West still enjoy a relative immunity to forces that in some areas would destroy the fundamental institutions of democracy. Our personal responsibilities in defense of American principles may prove to be very great, and they can be made effective. A sense of these responsibilities should underlie the work of this Society, its committees, and its officers, as the year's program is undertaken.

You have been most gracious in your acceptance of committee chairmanships and appointments, and these are now complete. It is anticipated that each of you will make every reasonable effort to respond to the call of your chairman.

Matters of agenda are now under consideration, and a number of suggestions as to plans for the year are being submitted to the House of Delegates. The following items deserve special consideration and are therefore mentioned here:

1. *The Centennial*. On February 10, 1959, the Kansas Medical Society will be 100 years old. The committee plans commemorative events looking to the past and the future and culminating in the state meeting in May of 1959.
2. *The National Rural Health Conference* is to be held in Wichita in March, 1959. This is a high spot in our Centennial program.
3. *Standards for Small Hospitals* (under 25 beds). The doctors concerned have asked for help in assuring the quality of service that will protect against the accidents peculiar to inadequately equipped and staffed institutions, recognizing also that such standards would provide substantial defense in the event of malpractice action. (Hospitals Committee.)
4. *Legislation*. Constructive efforts are anticipated with reference to highway safety, driver qualifications, farm implement hazards, sanitation, Workmen's Compensation, protection of eyesight, child welfare, etc.

Finally, I solicit your help, your comments, and criticisms, and look forward to the privilege of working with you in the year ahead.

Sincerely,

A handwritten signature in dark ink, reading "Thomas P. Butcher, M.D.". The signature is fluid and cursive, with a large, sweeping initial "T" and a stylized "B".

President

## EDITORIAL COMMENT

### Renaissance and Plateau

The scientific sessions for the American Heart Association have just been completed. From a study of the presentations and abstracts one can gain a fairly comprehensive idea of the nature and direction of research activities of most American cardiovascular specialists and laboratories. Allowing for the fact that certain investigators may wish to present their work before other groups (biochemist, pharmacologist, surgeon), nevertheless, by noting authors' names and institutions represented, one appreciates that the abstracts are a fair sampling of our cardiovascular research efforts.

Two hundred seventy-five abstracts were submitted. The abstracts are, of course, only a capsule voice for the clinicians and investigators, and their significance must be confirmed by that other inherent value of the medical meeting: the foyer or lounge abstracts. I am referring to that other (perhaps more important) reason for the annual meeting, the rapid and easy exchange of news, ideas, and gossip outside the lecture hall. The necklace would be skimpy indeed if the pearls came only from the lectern.

From the combination of printed abstracts and personal contacts, one is led to a sobering judgment. The American cardiologist, both clinician and investigator, currently on the scene and in leadership position, is in need of a new "bag of tricks." We have used the tools of our trade, the stethoscope, the electrocardiograph, the phonocardiograph, the catheter, the knife, to near their productive limit. True, advances and refinements will continue in these areas. Wider application of knowledge already gained is needed. However, as primary methods of investigation and diagnosis, their potential has reached a distinct point of decreasing return.

The renaissance of cardiology, beginning with the ligation of the patent ductus by Gross, has reached a plateau. In the years following his stimulus, an exciting, tumbling series of new ideas came on the scene: right heart catheterization, stabilization of electrocardiography under Wilson, the "team" expanding to include the cardiovascular surgeon, the meticulous auscultation which was developed by the cardiologist if he was to remain a necessary member of the team; needles inserted, pressure measured, and contrast dye injected in any and all chambers and vessels, electrolyte imbalances appreciated. . . .

Great and important advances have come. The final objective, the patient, has distinctly and permanently benefited. The grateful (and still concerned) public has made available to us immense sums of money.

Our work is carried out in secure and appreciative environments.

In these two decades since Gross' work and especially this last decade, a new breed of cardiovascular specialist has appeared on the scene. His predecessor, the pulse-feeling, whole-leaf, conservative clinician, found himself throughout the country hard-pressed and jeopardized by catheter-pushing, twelve-lead, aggressive young men. This new cardiologist has been successful and with the tools of his trade, in association with equally aggressive young surgeons, he has refined old ideas and defined new ones. With his catheters, galvanometers, transducers, x-rays, oxygenators, and ice, he has left an indelible, secure record.

But history repeats itself. This new cardiologist (and I include myself) finds that the tools of his profession are becoming dated. We find ourselves at a mid-point in our careers, faced with the fact that the remaining unanswered problems of disease (not only in our own specialty) are not to be understood nor solved by the tools we have at hand. We have analyzed and documented and treated to almost our outside limit. Our vocabulary which includes ventricular gradient, mean pressures, and potassium is not sufficient to converse with the new frontiersman: *the enzyme chemist*.

The analysis of disease and therapy has progressively moved through gross morphology, microscopic morphology, pharmacology, and physiology. We are in an era where disease processes are being analyzed and described at the intracellular level. The individual with this unique skill is currently far ahead of his clinical associates, so far ahead that we clinicians cannot even converse with the enzyme chemist, much less guide or direct him.

We have had our renaissance. We are on our plateau. The era of the enzyme chemist is here. He offers a powerful, difficult research method. We in cardiology, as individuals and as responsible administrators, need to take stock and re-equip ourselves in the methods and potential of this new field. Our funds and our efforts must be applied in this area which is the future of medicine; the path upward from the plateau will be strewn with electrokymographs, vectorcardiographs, and second generation cardiologists.—*E. Grey Dimond, M.D., Professor and Chairman, Department of Medicine, and Director, Cardiovascular Laboratory, University of Kansas Medical Center.*

### Committees for 1958-1959

Elsewhere in this issue will be found the committee appointments for 1958-1959 (page 246).

Statistically it may be seen that Dr. Butcher appointed 491 physicians to serve on 38 committees.

Geographically the committee appointments come from almost every county in the state with the major number of course being selected from the more populous cities. Scientifically the committees embody every specialty in the field of medicine, including that of general practice.

The above tells only a portion of the story because each of these have something in common. They have been appointed to carry forward the projects of the Kansas Medical Society during the coming year. They represent more than one-fourth of the membership of the Society, and from this group will come the genius and inspiration for the events of the future.

Already in the planning stage are great ideas for the celebration of the centennial, the writing of a commitment law for hospitalizing patients with mental illness, the creation of a Kansas Joint Hospital Commission, changes in Blue Shield programs, the preparation of a relative value fee schedule, the inauguration of a completely new project in the field of gerontology, the adoption of a code of cooperation between the legal and the medical professions, and many others. Those are examples of projects already under way. The future is limited only by the interest of the members.

Dr. Thomas P. Butcher, Emporia, president, wrote a letter to each member of the Society asking for suggestions as to committees on which they would enjoy serving. Many replies were received, and the president appointed every such person to the committee of his choice. He next selected the chairmen and asked each of them for suggestions. Here also many were received and complied with unless the member had shown an interest in some other committee or unless other complicating factors arose.

Dr. Butcher wishes now to announce to the membership that the present list of committees is not static and that he would still be pleased to add to this printed list the names of any physicians who are willing to serve. It would require only a note expressing an interest in a subject for the appointment to be made.

Another change will be the addition of more committees as the year progresses. This regularly happens, and what those committees shall be appointed to do cannot now be anticipated. Here also Dr. Butcher will be pleased to have suggestions of new subjects either to be assigned to existing committees or for the creation of new committees.

These physicians will make a great contribution to the Kansas Medical Society as well as to the people of this state in the many hours of planning they will give in behalf of committee effort. During the past year almost every committee of the Society met at least once. A number of committees met four times. Several committees divided their work with sub-committees, and all gave generously of their time and of

their ability toward making medicine in Kansas of higher quality and more effective service. It is planned that the pace of committee activities will be accelerated in the coming year.

## Directory of Kansas

Mr. Paul R. Shanahan, secretary of state, published a new directory of Kansas which contains much fascinating trivia along with items of historical import. Among items that may be something less than universally known are the following unrelated but perhaps entertaining facts.

If the United States were carved out at an equal thickness all the way through, the balance point would be near Lebanon, Kansas. If the same thing were done for the North American continent, it would balance at a point in Osborne County.

There are 13 first-class cities, 85 second-class cities and 515 third-class cities in Kansas for a total of 613 incorporated cities, of which six are astride county boundaries. There are 105 counties, 6 congressional districts, 40 state senatorial and 125 legislative districts, 1,552 townships, and 2,976 election precincts.

There are not less than 100 state boards, commissions or councils in Kansas, ranging from the Board of Abstractors, the Academy of Science, the Highway Commission, the State Park and Resources Authority, and the Port of Entry Board, to the Water Resources Board, the Wheat Commission, and Workman's Compensation.

The state population was 2,081,654 as of March 1, 1957. The largest county population was Sedgwick with 312,131, the smallest Greeley with 1,893.

Kansas became a state on January 21, 1861, and in November of that year Topeka was voted the capital city. The statehouse was started in October 1866 and after many hazards, including a subterranean stream, financial, and many other problems, the building stands today 304 feet high from the dome to the sidewalk. At one time each office contained a "handsome porcelain bathtub and a washstand of pure white marble." In 1867 corn was planted on the statehouse grounds, and a fence was added in 1880 to keep stray cows from trespassing.

The statehouse cost \$3,200,588.92 as compared with the new 12-story, 180-foot tall state office building containing 540,000 square feet of space which was built at a cost of \$8,600,000.

The state flag is a blue field with a large golden sunflower and the state seal. The familiar "Ad Astra Per Aspera" is the motto. The design of the seal features 34 stars, that for Kansas being the newest. The bar or wreath represents the Louisiana purchase, the hills in the background somewhat glorify the



terrain near Fort Riley. The steamboat represents early navigation on the Kansas River. The buffalo, Indian, the open prairie schooners, the cabin and the plowman, all featured in the seal, represent the history of this state.

And there is more. This directory shows Charles Robinson of Lawrence to have been the first governor of Kansas, Joseph Pomeroy Root of Wyandotte to have been the first lieutenant governor, and John Winter Robinson of Manhattan to have been the first secretary of state, all of them having been elected to a term beginning in February 1861.

What this directory does not show is that each of the three highest officials of Kansas when it began its statehood was a doctor of medicine and that each was among the incorporators of the Kansas Medical Society who appeared before the territorial legislature and obtained a charter on February 10, 1859.

## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### SEEK CARE FOR AGED

Most health authorities agree that one of the major problems facing the nation in the future is the question of how to care for aged persons.

The reasons this is a problem and will grow in its need for solutions are three-fold:

First, persons are living longer because of the great rise in living standards and in health standards.

Second, persons who once would have died of diseases before reaching their 70s or 80s now survive because of the wonderful medicines and surgical techniques available.

Third, because of the changing pattern of family life few modern homes have the space to care for aged parents.

Because of the growing importance of this whole area of health and social welfare, it is good to see that four large health organizations are planning to coordinate their efforts to seek adequate care for the aged at reasonable costs.

The American Dental Association, American Hospital Association, American Medical Association and American Nursing Association decided this week to establish a "joint council to improve the health care of the aged."

One of the objectives of the council will be to work

with insurance groups to improve coverage of the aged and to see to it that their insurance dollars go farther.

This is a worthy effort. Surely the fact that these groups are awakening to the needs of elderly folks should alert the rest of us to the problem. It may very well be that in the 1960s it will be the major concern in our national life.—*Wichita Eagle, April 9, 1958.*

### FREE MEDICINE CAN MAKE YOU SICK

Efforts to inject government into medicine on an all-inclusive scale continue. It is argued that this is the only way that the best and most extensive medical care can be provided for all the people.

Many people sincerely believe this. But all the evidence indicates that their faith is misplaced—as Dr. Charles G. Jones, a Pennsylvania surgeon, points out in an article appearing in the February issue of *The Freeman*.

Dr. Jones' compelling article has a vivid and dramatic title—"Free Medicine Can Make You Sick." He bases it on the experience in England, where "free" socialized medicine has been in effect for some years. The cost to the British taxpayer has been enormous. Still more important has been the cost in terms of the public health.

Dr. Jones says this: "The deleterious effects of the system are to be noted everywhere. There are so many free dental patients that dentists no longer have time for their customary work with school children. . . . Waiting lists for admission to hospitals become staggering. The increased volume of patients invites second-rate care for many instead of first-rate care for the truly ill. The burdensome cost of caring for those who are ill, plus those who pretend, leaves no funds for research or preventive medicine."

Compulsory government health insurance, which is and has been advocated in this country, would produce identical results. There is small doubt that it would ultimately end in socialization, on something resembling the British pattern. We'd pay an exorbitant price for it—in money, and in inferior medical service.—*Goodland Herald, March 20, 1958.*

### Blood Bank at Marysville

The new Marysville Community Hospital has entered into a cooperative arrangement with the Omaha Regional Office of the American Red Cross for the establishment and operation of a storage blood bank at the hospital. The Red Cross will send in a blood-mobile unit to draw blood and keep a representative supply of fresh blood at the hospital.

## Maternal Death Study—Case History

*The following cases are presented together because of their similarities.*

Case 1: The patient was a 42-year-old gravida 3 para 2 who reported for prenatal care in the third month of the final pregnancy. Her general physical condition was normal and usual laboratory procedures were carried out and were within normal limits. Diet was good and adequately supplemented. The only unusual item in the situation was that the previous pregnancies had been almost 25 years previously. No complications were noted during five subsequent office visits which brought her into the eighth month.

She continued her work of part time bookkeeping in her husband's grocery store until the day of her death. On that day she complained of a headache but continued working. She fainted suddenly and was immediately taken to the local hospital, a distance of a few blocks, where the physician saw her without delay. She continued unconscious; the deep reflexes were absent and the pupils were dilated. Blood pressure was 130/80 and pulse was slow. Despite oxygen, fluids and stimulants (terminal), she died about two and a half hours after the onset. A healthy, six-pound male infant was delivered by postmortem section.

The physician assigned the death to "cerebral hemorrhage due to rupture of a cerebral aneurysm." No autopsy was performed.

COMMITTEE ACTION: The committee, while agreeing with the diagnosis of an intracranial hemorrhage, felt that specifying it as the rupture of a cerebral aneurysm was not justified without autopsy. However, it felt that the patient's health did not warrant any advice against pregnancy, that her general course was normal and adequately attended and did not give warning of the impending accident, and that the final episode was as well managed as possible especially considering the delivery of a live baby. Although the hemodynamics of pregnancy undoubtedly influenced the course of the condition, the accident might have occurred at any time and obstetrical care could not have altered it.

CLASSIFICATION: MATERNAL, NON-OBSTETRICAL, NON-PREVENTABLE DEATH.

Case 2: This patient was a 29-year-old gravida 4 para 3 who began her prenatal care in the fourth month. Physical findings, laboratory tests and prenatal course were normal. The only deficiency noted was failure to report for care during the two months prior to the date of confinement.

Two days after this date, the patient complained of headache; on the following day, within two hours, the headache became much worse and she became disoriented and began to convulse. She was admitted to the hospital where the blood pressure was found to be 110/76, urinalysis was normal and spinal tap produced grossly bloody fluid. Consultation with a qualified neurosurgeon was obtained and the opinion was "subarachnoid hemorrhage, terminal. Surgery not indicated." A few hours later, Cesarean section was performed in order to save the baby and a six-pound, one-ounce baby in good condition was obtained. The patient was sustained for five days but died without improvement. Autopsy confirmed the diagnosis of a massive subarachnoid hemorrhage.

COMMITTEE ACTION: The committee noted the failure of the patient to be seen frequently in the last weeks of pregnancy as a departure from good obstetrical care although this did not necessarily influence the outcome and the physician may have been unable to alter the situation. The adequate coverage of the final illness and delivery of a live baby were commended.

CLASSIFICATION: MATERNAL, NON-OBSTETRIC, NON-PREVENTABLE DEATH.

(Two of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.)

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

The recession continues to influence the course of much legislation, as Congress points toward the wind-up of its session. Even in the health fields, bills that promise in one way or another to alleviate unemployment appear to have priority. At the same time, federal departments are favoring construction grants to projects that can be started without much delay.

Here are some of the developments:

1. Liberalizations in unemployment compensation and in social security are receiving constant attention on Capitol Hill. At this writing, the bill to extend the period for unemployment compensation payments is making progress. There is the possibility also that it will make participation mandatory for all employers.

Prominent among proposed changes in the social security program itself is the Forand bill for free hospitalization and in-hospital medical care and surgery for persons entitled to social security benefits. It is being pushed by the AFL-CIO and by some liberal Democrats, and opposed by the American Medical Association and a growing group of other organizations. The opposition is convinced that the Forand bill is unnecessary, that it would be far more costly than anticipated, and that it would point the way to a broad national medical care plan for all persons covered by social security.

2. A controversial bill to vastly increase money available for grants for community facilities—waste plants, hospitals, state medical schools included—is active in Congress. One proposal is to vote a billion dollars, to be lent out (at about  $3\frac{1}{2}$  per cent interest for 50 years) to communities. The objective here, as in many other measures, is to put people to work on construction projects.

Federal agencies have evolved a number of schemes to get U. S. dollars into circulation faster, and are attempting to work out others. In each case described below, no additional appropriation is involved; money is shifted from a project that is getting a slow start to one that is about ready to begin construction. Also, all totals given represent amounts to be spent by the sponsors as well as the federal government. Here are arrangements already made:

1. In January, the Hill-Burton hospital construction program called for U. S. grants to start buildings valued at \$381 million; this figure has been stepped up to \$405 million by July 1.

2. Between January and July 1, the original plan was to allocate enough money to start \$120 million in construction for health research plants. This has been increased to \$182 million.

3. Before the recession became so prominent an issue, the plan was to grant enough U. S. money to start construction of \$170 million in sewage plants. Under pressure, the total has been increased to \$215 million.

In most cases, when a project is delayed and thus loses its allocation, the grant is re-scheduled for next fiscal year.

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American Medical Association is one of the four sponsors of a new Joint Council to Improve the Health Care of the Aged. The others are American Dental Association, American Hospital Association, and American Nursing Homes Association.

The council already has authorized research in a number of directions to (a) analyze the health needs of the aged, (b) appraise available health resources for them, and (c) develop the best possible health care for them, regardless of their economic status.

Effects of this united front action should be felt when Congress takes up the Forand bill and other legislation pointed toward relief for the aged.

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The American Medical Association is asking Congress to strengthen the Civil Aeronautics Administration's medical department so it can properly supervise fliers' physical examinations and advise on other aviation medical matters. The A.M.A. also is recommending that an office of civil air surgeon and a medical research laboratory be established within CAA.

Congress has under consideration several plans for reorganizing the Defense Department, two of which would result in elimination of the office of Assistant Secretary for Health and Medical matters.

Progress on appropriations bills indicates more money for research at the Institutes of Health, and at least \$121.2 million (the same as this year) for Hill-Burton hospital construction.

Andrew Biemiller, top legislative man for the AFL-CIO, told a recent delegation just returned from visiting Capitol Hill: "Congressmen are falling all over themselves in wanting to do something in the recession. I think we can cash in on this."

Testifying before a House appropriations subcommittee, Secretary Folsom said coverage under major medical insurance has gone up almost 20-fold in the last five years.



## Kansas Psychiatry—The Way Ahead

This is the first of a series of articles prepared by the Committee on Mental Health of the Kansas Medical Society for publication in the JOURNAL. The intent of these articles is four-fold: (1) to bring usable and practical psychiatric understanding to physicians in other fields; (2) to inform Kansas physicians of psychiatric resources in Kansas and how they may be used; (3) to further mutual understanding between psychiatrists and their medical colleagues, and (4) to help in some measure toward more and better psychiatric services for the people of our state.

For many years psychiatry was a backward specialty and the main purpose of psychiatrists was to keep disturbed patients quarantined and cared for. Today this aspect of psychiatry has been reduced to a minimum; most psychiatric patients can be treated and benefited in a relatively short time if they are seen early enough. Seven or eight times as many patients now enter our state hospitals and are discharged within a few months as used to enter in a year. Besides this, far more outpatient facilities are available. But the difficulty is the shortage of personnel, from physicians on down, that is necessary for the care of patients.

Kansas suffers, as do all other states, from an insufficient number of trained psychiatrists, psychiatric nurses, psychiatric social workers, and clinical psychologists. These four disciplines provide the backbone of both hospital and outpatient psychiatric practice. Adjunctive therapists\* and high quality aides are also necessary in greater numbers. Adequate psychiatric service can never be provided, in or out of hospitals, until these numerical deficiencies are remedied. Fortunately, Kansas is doing something about this.

In Kansas, the Menninger Foundation, the Veterans Administration, and the state of Kansas have established the largest single residency training program in psychiatry in the world, the Menninger School of Psychiatry. The University of Kansas School of Medicine has likewise taken steps to provide more and better training for doctors in this specialty, as well as for personnel in the related disciplines. The Five-Year Residency Program—a Kansas innovation—has already improved the quality of care in all of our state institutions. Affiliates from various nursing schools and from the University of Kansas School of Social Work also receive part of their training at Topeka State Hospital. Senior medical students from the medical school are assigned to Topeka State Hospital and gain further insight into the understanding, care, and treatment of the emotionally ill in preparation for their practice. Some of these social workers, nurses, and doctors have chosen to continue in this field, partly because of their experiences in Topeka. Graduates of the Menninger School of Psychiatry, and of the Kansas University Residency Program, have gone into private practice in Kansas City, Topeka, Wichita, and elsewhere. Outpatient clinics manned or supervised chiefly by personnel trained in Topeka and at the K.U. Medical Center are conducted in Lawrence, Atchison, Manhattan, Topeka, Osawatomie, Wichita, and Larned.

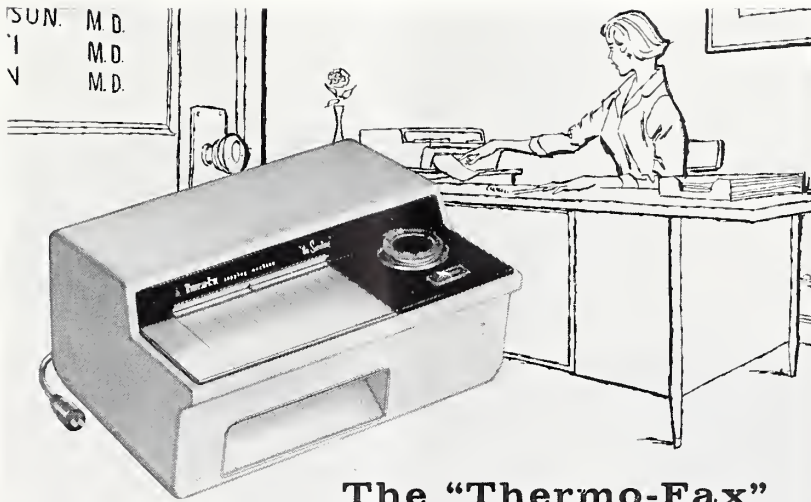
Progress in Kansas during the past 12 years has thus been remarkable, both in the quality of psychiatric services and in the number of doctors and other trained personnel remaining and practicing in Kansas. The heart of psychiatric care will always be in its hospitals and training centers, and only by strengthening these can one hope to move on to the other great needs in Kansas: (1) outpatient services throughout the state, including psychiatrists and psychologists in private practice and in free or part-pay clinics; (2) adequately staffed psychiatric wings of general hospitals, and/or private psychiatric hospitals elsewhere than at present; (3) psychiatrists with time enough and—geographically available enough—to work more closely with social agencies and with lay organizations such as the Kansas Association for Mental Health, and (4) sufficiently well-trained psychiatrists with more time to effectively help their front-line colleagues—the general practitioners and other specialists—to more deeply understand, help, and appropriately refer those whose emotional illnesses are in the early stages. It is only by means such as these that prevention can become tangible and the greatest good rendered to the citizenry as a whole.

The success of this necessarily long-term program depends upon the cooperation and concern of all the medical profession.

*Prescott W. Thompson, M.D.*

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\* A comprehensive term for occupational therapists, recreational therapists, music therapists, and other trained professional staff persons similarly employed.



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References: 1. Griebble, H. C. and Jackson, G. G.: Prolonged Treatment of Urinary-Tract Infections with Sulfamethoxypyridazine. *New England J. Med.* 258:1-7, 1958. 2. Editorial *New England J. Med.* 258:48-49, 1958. 3. Jones, W. F., Jr. and Finland, M., Sulfamethoxypyridazine and Sulfachloropyridazine. *Ann. New York Acad. Sc.* 60:473-483, 1957.

\*Reg. U. S. Pat. Off.



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## THE ENCOURAGEMENT OF PROGRESS

The American Cancer Society's annual Spring Crusade is the climax of its year-round attack on cancer through research, professional and lay education, and service to the stricken. A study of the cancer scoreboard indicates that steady progress is being made. More and more lives are being saved. Progress encourages more progress.

Earlier diagnosis, new methods of treatment and a greater public awareness have contributed to this progress. It is often said that the life of the cancer patient is in the hands of the first physician he consults. The Society, therefore, conducts a broad professional education program, making available to doctors, through literature, films, exhibits, and other materials, information on the latest advances in detection, diagnosis and treatment.

As the Society aids the doctor, so does its large corps of volunteers aid the cancer patient with dressings, transportation, home care, medication and a host of other vitally needed services.

For the past two years, the theme of the Society's annual Crusade has been "Fight Cancer with a Checkup and a Check." That Americans everywhere are learning the value of the annual health checkup in the fight against cancer, is evidenced by the fact that doctors report they are now seeing more cancer in its earliest stages than ever before.

That American men and women have a personal stake in the program of the American Cancer Society is demonstrated by the public's generous support of the Crusade. This year the goal is \$30,000,000 and we are confident that our people will meet the challenge... will "fight cancer with a checkup and a check" in the encouragement of further progress.

Lowell T. Coggeshall, M.D., *President*  
*American Cancer Society*



## ACTH and Cortisone

Many are the clinical benefits of the pharmacological actions of adrenocorticotropin and cortisone as the active therapist knows, and yet as with so many potent agents, untoward effects may ensue with their use. Frequently the benefits are extolled, while the complications and hazards are but briefly dwelt upon. Dr. Robert A. Good highlighted this particular point by relating his group's experience in this regard to the participants of the 22nd Ross Laboratories-sponsored Pediatric Research Conference. In the capable hands of these investigators, 35 patients out of a series of 340 patients on steroid therapy suffered consequences that were serious enough to threaten the lives of the children. This is an incidence of approximately 10 per cent.

As all are aware, administration of ACTH or cortisone, or their analogs, at times, may so disturb the electrolyte balance of the individual by retention of sodium and chloride that generalized anasarca with pleural effusion and pulmonary edema may supervene. As this occurs, the concomitant loss of potassium may be severe enough to cause such an overall deficit that at the cessation of therapy a state of hypokalemia with shock ensues. Listlessness, abdominal cramping, and abdominal distension may symptomatically reflect the hypokalemic state without shock. Parenteral replacement of the potassium does not effectively enhance the intracellular concentration, and may only raise the serum potassium level to an alarming degree.

In individuals in whom there is an existing renal complication, such as the nephrotic syndrome, hypertension with or without convulsive seizures may develop. Indeed, convulsive seizures may develop in patients where no renal disease exists at all. As the blood lipids are shown to be concentrated in steroid treated patients, there exists the possibility that the integrity of the vascular system may be jeopardized. The appearance of arteriosclerotic complications after long term treatment deserves consideration.

Long term steroid therapy, as in cases of rheumatoid arthritis, frequently results in a disturbance of calcium metabolism. Osteoporosis results with subsequent pathologic fractures. In this class of patients, since the steroids do influence the cellular life of mesenchymal cells, polyarteritis nodosa may develop as an adverse end result.

Central nervous system disorders such as paranoid schizophrenia and status epilepticus have been known to appear. And perhaps of some theoretical interest is the experimentally demonstrated fact that the steroids enhance the effect of oncotic agents, and will persuade tumors that do not normally metastasize to do so in their presence.

However, the most serious untoward manifestation of these agents is their "masking" potential which permits infection in the absence of symptoms to become established and silently proceed until a truly life-threatening hazard exists. Most commonly the gastrointestinal tract is the system involved. Perforation with peritonitis is not of rare occurrence. Ulceration with hemorrhage in this system is also of some frequency. Susceptibility to infection is readily established even with moderate doses over a short period of time. While staphylococcal infections such as staphylococcal septicemia, cellulitis, pneumonia, etc. are listed most commonly, other organisms may also flourish.

It is clear that adrenocorticotropin and cortisone must be used with caution, and constant critical evaluation of the patient's progress is required.

This is one of a series of articles prepared for the JOURNAL by the Committee on Child Welfare of the Kansas Medical Society.



## PHYSICIANS' ACTIVITIES

**Dr. Stanley R. Friesen**, of the University of Kansas Medical Center, was moderator of a panel discussion on "Benign Lesions of Ileum and Colon" at a sectional meeting of the American College of Surgeons in Salt Lake City in March.

**Dr. Homer L. Hiebert** and **Dr. Dean M. Miller**, Topeka radiologists, were speakers at a ceremony in Topeka last month when the first two diplomas ever awarded by the Stormont-Vail School of X-ray Technology were presented. The school is accredited by the American Medical Association and the American Board of Radiology, is sponsored by the hospital board, and is directed by staff radiologists.

A paper, "The Professional Identity of the Psychotherapist," was presented by **Dr. Robert S. Wallerstein**, Topeka, at a meeting of the American Orthopsychiatric Association in New York City in March.

**Dr. William R. Evans**, formerly of Hoisington, has moved to Great Bend and is now serving as health officer for Barton County and the city of Great Bend.

The Sedgwick County Medical Society participated in Career Day in Wichita by sending speakers to various high schools. Those taking part were: **Doctors C. J. Kurth, F. H. Chard, C. P. McCoy, J. G. Phipps, F. H. Harris, Paul Kaelson, D. R. Wall, H. T. Hidaka, A. J. Adams, J. T. Hamilton, and D. C. Reed.**

**Dr. Robert P. Woods**, of the Menninger Foundation, presented a medico-legal case to students of the Washburn Law School, Topeka, recently.

Announcement has been made by **Dr. Kenneth Bickford**, who was recently discharged from service in the Army, that he will begin practice in Cherryvale, sharing offices with a former classmate at the University of Kansas School of Medicine, **Dr. Richard Hille.**

**Dr. Leonard F. Peltier**, professor of orthopedic surgery at the University of Kansas Medical Center, has been elected to membership in the Society of University Surgeons.

**Dr. Houghton S. Albaugh**, Olathe, who has been Johnson County health officer for 12 years, has resigned because of illness.

A paper by **Dr. Kurt Wolff**, Osawatomie State Hospital, "Active Therapy Replaces Custodial Care for Geriatric Patients in Mental Hospitals," was published in the March issue of *Geriatrics*.

**Dr. Donald E. Wilcox**, Kansas City, acting city-county health director, resigned the position as of April 15. **Dr. Nellie Walker**, who formerly held the position, is now on leave of absence to take postgraduate training and plans to return on June 1.

**Dr. E. Grey Dimond**, of the University of Kansas School of Medicine, took part in a panel discussion at a meeting of the American Academy of General Practice in Dallas in March. Last month he was moderator of a panel discussion, "Electrocardiographic Quiz," at the 1958 session of the American College of Physicians in Atlantic City.

A community party honoring **Dr. James E. Henshall**, Osborne County physician for more than 40 years, was held last month to celebrate his birthday. A movie on his life was presented.

**Dr. Harold L. Lawless**, now senior resident physician at Sacramento County Hospital in California, has announced plans to open an office in Blue Rapids in August.

**Dr. Edward D. Greenwood**, of the Menninger Foundation, was keynote speaker at a meeting of the American Association of Health, Physical Education, and Recreation at Kansas City last month. His topic was "The Pre-Adolescent Child in Modern Society."

Three associates in medicine at the University of Kansas Medical Center, **Dr. John F. Christianson, Dr. William E. Larsen, and Dr. James E. Crockett**, recently became diplomates of the American Board of Internal Medicine.

**Dr. Howard E. Snyder**, Winfield, has been appointed to the Board of Commissioners of the Joint Commission on Accreditation of Hospitals to represent the American College of Surgeons. His term will expire in 1960.

Two Wichita physicians were elected to office in the Mid-Central States Orthopedic Society at a meeting held in Little Rock last month. **Dr. Harry O. Anderson** was chosen as vice-president, and **Dr. H. O. Marsh** was named secretary-treasurer.

**Dr. Oscar W. Davidson**, Kansas City, discussed public relations at a meeting of the Wyandotte County Medical Assistants' Society last month.

**Dr. I. Clark Case**, Topeka, was an assistant examiner for the American Board of Neurology and Psychiatry at San Francisco recently.

A feature story about **Dr. L. Lafe Bresette**, Kansas City physician for 40 years, was published in the March 23 issue of the *Kansas City Kansan*.

**Dr. William L. Valk**, of the University of Kansas Medical Center, spoke on "Fluid and Electrolyte Balance" at a recent sectional meeting of the American College of Surgeons in Des Moines. He was also recently named to membership in the Clinical Society of Genitourinary Surgeons.

**Dr. C. Ray Athey**, Wichita, spoke on "Hypnosis in Medicine" at the seventh annual convention of the Kansas Association of Practical Nurses in Wichita last month.

*The Kansas City Times* and the *Cherryvale Republican* recently carried stories about **Dr. William G. Norman**, Cherryvale, who has started his 61st year of practice.

**Dr. William Menninger**, Topeka, was master of ceremonies at a dinner held in Emporia last month in connection with a meeting of the Kansas Chapter, American College of Physicians. **Dr. H. Alden Flanders**, Hays, presented a paper on the program, "The Philosophy of Rehabilitation of Chronic Diseases." Two Emporia physicians, **Dr. John L. Morgan** and **Dr. Edward J. Ryan**, were in charge of arrangements.

**Dr. Calvin A. Pyle**, who has been on the staff of a Veterans Administration hospital in Prescott, Arizona, for the past three years, has moved to Leavenworth and is now public health officer for the city and for Leavenworth County.

"The Management of the Euthyroid Patient with Nodular Goiter" is the subject chosen by **Dr. Frank F. Allbritten, Jr.**, of the University of Kansas Medical Center, for an address before the Missouri State Medical Association in St. Louis on April 15.

**Dr. Irene A. Koenke**, of the Hertzler Clinic, Halstead, was guest of honor at a banquet given in Wichita last month by the Soroptimist Club. Dr. Koenke was elected as this year's recipient of the Soroptimist award "in recognition of outstanding individual achievements in professional and business fields of endeavor."

**Dr. Ferd H. Burnett**, Cunningham, was honored by his community on April 13 with a surprise "This Is Your Life" program. He has been in practice since 1906.

The retirement of two University of Kansas School of Medicine faculty members, **Dr. Sam E. Roberts**, of the Department of Otorhinology, and **Dr. Edward H. Hashinger**, of the Department of Medicine and Gerontology, was announced recently. Dr. Roberts had been at the university since 1914 and Dr. Hashinger since 1921.

**Dr. Glenn R. Peters**, Kansas City, headed a group discussion on "Fields of Medicine" at a career day program for students at Central College, Fayette, Missouri, on April 12.

Announcement was made recently that **Dr. Joe T. McKibben**, a graduate of the University of Kansas School of Medicine, will move to Kansas soon to practice in Hardtner. Dr. McKibben, recently of Anaheim, California, is a diplomate of the American Board of Surgery.

**Dr. Paul H. Lorhan**, of the University of Kansas School of Medicine, spoke on "Geriatric Anesthesia" at a refresher course sponsored by the American Society of Anesthesiologists in New York last month.

### Blood Typing in Denton

A community blood typing program was begun in Denton recently for the purpose of establishing a walking blood bank for that area. A laboratory technician tested 80 persons to establish their blood types, and 40 more who had already been tested brought cards from other areas to have their names added to the Denton list.

## COUNTY SOCIETIES

Members of the Montgomery County Medical Society entertained members of the bar association in the county at a dinner meeting at the Coffeyville Country Club recently. For the program Dr. Stephen S. Ellis, Coffeyville, served as moderator for a panel discussion on "Examination of Medical Witnesses during Trial." Participants for the legal profession were Mr. Jay W. Scovel of Independence and Mr. Aubrey Neale of Coffeyville; for the medical profession, Dr. J. G. Hughbanks, Independence, and Dr. Robert Nix, Coffeyville.

Dr. Sherman M. Steinzeig, associate in medicine at the University of Kansas Medical Center, was guest speaker at a meeting of the Leavenworth County Medical Society at the Hotel Cody last month. He discussed new aids in diagnosis and treatment of heart disease. In view of the public's interest in modern medicine, the society passed a resolution offering to supply speakers to civic bodies on request.

A meeting of the Cowley County Medical Society was held at the Arkansas City Country Club on March 20. Mr. Ford Harbaugh of Wellington, chairman of the Kansas Bar Association Committee on Relations with the Medical Profession, spoke on the proposed inter-professional code for attorneys and physicians of Kansas. Mr. Oliver E. Ebel of Topeka, secretary of the Kansas Medical Society, discussed health workshops in Winfield.

Members of the Pratt County Society were guests of the Auxiliary at a dinner at the Park Hills Country Club, Pratt, last month. Dr. Francis A. Thorpe showed color slides of beauty spots of the nation.

The Golden Belt Medical Society met at the Country Club in Junction City on April 10 with members of the Geary County Medical Society as hosts. Dr. W. D. Francisco, Kansas City, was moderator of a panel discussion on back pain. Participants in the discussion were Dr. Robert P. Woods, Dr. Joseph Gendel, and Dr. Peter Thompson of Topeka, Dr. Donald Wald of Salina, and Dr. Paul Nelson of Concordia.

"Emergency Care of Eye Injuries" was the subject discussed by Dr. Larry L. Calkins, of the University of Kansas Medical Center, at a meeting of the Wyandotte County Medical Society in Kansas City on April 15.

A meeting of the Shawnee County Society was held in Topeka on April 7. During the business session the group heard committee reports and voted to give third polio shots (prior ones given in December and January) at a public clinic in August, charging \$1.00 for each shot. Mr. Oliver E. Ebel, executive secretary of the Kansas Medical Society, Dr. James A. McClure, and Dr. Lucien R. Pyle discussed matters to come before the Kansas Medical Society at its annual convention in May. A proposal by the Tuberculosis Committee of the society was approved as follows: that the society sponsor a tuberculosis clinic to be administered under the supervision of the Topeka City-Shawnee County Health Department, the Shawnee County Medical Society, the Tuberculosis Association, and other interested agencies, the clinic to be held separate from all other clinics.

## DEATH NOTICES

ADELBERT L. SUWALSKY, M.D.

Dr. A. L. Suwalsky, 79, Leavenworth physician since 1901, died there on March 27. He was graduated from Medico-Chirurgical College of Kansas City that year. During his years of practice he had served two terms as president of the Leavenworth County Medical Society, of which he was an honorary member at the time of his death. He had also served as city physician and as county health officer.

OMAN REUBEN BRITTAI, M.D.

A pioneer in the field of radiology, Dr. O. R. Brittain of Salina, 79, died on April 3 at a hospital in Wichita. An honorary member of the Saline County Society, he had been in retirement since 1948. He received his medical education at Creighton University School of Medicine, completing his work there in 1903. He began practice in Salina in 1904, helped found the Mowery Clinic there in 1932, and assisted with installation of the first x-ray machine in Salina at St. John's Hospital. During World War I he served at Fort Riley and at the medical center at Fort Oglethorpe, Georgia. He was a diplomate of the American Board of Radiology and a fellow of the American College of Radiology.



### Markle Scholar at KUMC

Dr. Ned W. Smull, instructor in pediatrics at the University of Kansas School of Medicine, was chosen last month as one of 25 Scholars in Medical Science for 1958 by the John and Mary R. Markle Foundation. A Markle scholar receives a \$30,000 appropriation during a five-year period.

Dr. Smull's research interests have been in the field of respiratory physiology. For the past three years he has been engaged in the research laboratories at Kansas City as a member of a team investigating respiratory insufficiency in newborn infants.

The Markle Foundation came into existence in 1927, and since that time 231 physicians in 74 medical schools have been chosen to receive the grants. The purpose of the program is to improve medical research and education by assisting promising young teachers and investigators who, too often, because of financial reasons, must forego academic careers.

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### Care of the Aged

The foundation was laid recently by some of the most important organizations in the health field to solve the problem of the health care of the aged.

For this purpose the American Dental Association, the American Hospital Association, the American Medical Association, and the American Nursing Home Association announced the establishment of the Joint Council to Improve the Health Care of the Aged.

Objectives of the council, the formation of which has been under consideration for some time by the sponsoring groups, were announced as: (1) to identify and analyze the health needs of the aged; (2) to appraise available health resources for the aged; and (3) to develop programs to foster the best possible health care for the aged regardless of their economic status.

The Joint Council to Improve the Health Care of the Aged is made up of three representatives of each sponsoring organization.

One of the first jobs of the council will be to determine exactly what are the health problems of the aged. Studies have been underway for the past several years by the organizations making up the council, but now, through joint efforts, research will be intensified and projects for meeting the problem will be activated as rapidly as possible. The council will be the agency through which the efforts of the sponsoring member organizations will be coordinated to solve the health problems of the aged.

The sponsoring organizations pointed out that the need for new programs in this field is accentuated by

the fact that the life expectancy of individuals has been constantly increasing in recent years. In 1935 life expectancy in the United States was an average 60.2 years. The most recent figure indicates the average life expectancy now to be 70.0 years.

The council will have as one of its principal immediate projects the development of programs and facilities to be tailored to the health needs and finances of the aged.

Another facet of the council's broad-range program will be to work closely with health insurance groups in an effort to improve the coverage of the aged and to see that their insurance dollars go further.

It is the belief of the Joint Council to Improve the Health Care of the Aged that much can be done for older people by the states and communities, and the council will endeavor to stimulate the activities at these levels of government.

Special research projects are contemplated by each of the organizations supporting the council. This research will then be pooled and programs developed to meet the health needs of the aged. The ultimate goal is to provide adequate health care at reasonable costs.

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### Schering Gives Audio Digest Subscriptions

Announcement has been made by the Schering Corporation that it is giving 200 one-year subscriptions to Audio Digest to teaching hospitals for the benefit of resident physicians and interns. Each subscription will consist of 122 tapes, each tape recording important medical articles, clinical reviews, and lectures. There will be 26 tapes on general practice and 24 each on surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Lecturers who make the tapes serve without pay to the Audio Digest Foundation, as do members of its board of editors and 100 consultants. All revenue over the cost of production and distribution is contributed to the American Medical Education Foundation.

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### Film Catalogue Available

A revised list of films available through the American Medical Association motion picture library has been prepared and copies are available upon request from Motion Pictures and Medical Television of the American Medical Association. This catalog lists 87 medical films suitable for showing to medical societies, hospital staff meetings, and other scientific groups. This catalog also includes 57 health films of interest to physicians who may be called upon to speak before lay audiences such as service organizations and Parent-Teachers' Associations.

# Tumor Conference

## *Testicular Tumors*

Edited by **BONITA J. PETERSON, M.D.**

Dr. Friesen: Testicular tumors comprise about 2 per cent of all malignant neoplasms in men and almost 10 per cent of the malignant tumors of the male genitourinary tract. Germinal tumors, of which the three following cases are examples, constitute about 96 per cent of all testicular malignancies.

Dr. Brosius: A 31-year-old white man entered the University of Kansas Medical Center with complaints of hemoptysis and dyspnea. He had been in good health until three months previously when he developed a slight non-productive cough. The cough became productive of clear, blood-streaked sputum and was accompanied by progressive shortness of breath. He did not seek medical attention until ten days before admission, when a roentgenogram of the chest was taken. His past history included surgery at another hospital at the age of 13 for an undescended right testicle and an inguinal hernia.

On admission he was pale, apprehensive, moderately dyspneic, and acutely ill. Examination of the chest revealed both inspiratory and expiratory moist rales throughout both lung fields. No enlarged lymph nodes were palpated. There was a scar and tenderness in the right lower quadrant of the abdomen. No abdominal organs or masses were palpated. The right testicle was not in the scrotum. The left testicle was small but not atrophic. The initial laboratory examinations were within normal limits except for a cytologic examination of sputum reported as containing malignant cells.

Dr. Davidson: The chest film shows a widespread nodular infiltration throughout both lungs typical of metastatic disease.

Dr. Brosius: The hospital course was one of rapid deterioration. The patient was extremely dyspneic during the last three days of his life, despite oxygen therapy. We started him on radiotherapy two days before he died, hoping that the tumor might be somewhat radiosensitive.

Dr. Friesen: Were any laboratory findings of help in determining the tumor type?

Dr. Brosius: His Aschheim-Zondek test was positive. In checking the operative record at the other

hospital we found that the testicle was never found. The final diagnosis was given as absence of the right testicle. We believed that the primary tumor arose in an intra-abdominal testicle and was producing gonadotrophins.

Dr. Donald: The malignant potential of undescended testicles is one of the principal reasons for their clinical importance. There is controversy as to the percentage of malignant change and most statistics are poor, because the total number of such cases is small. It has been stated<sup>1</sup> that the chance of malignant change is about 45 times that for a scrotal testicle. A cryptorchid testicle may undergo malignant change even after it has been placed in the scrotum. Nobody knows whether this is due to an inborn defect or to changes which occur while the testicle is still in the abdomen.

Dr. Friesen: If the danger of malignancy is not reduced, why should the testicle be placed in the scrotum?

Dr. Donald: It can then be examined by the patient and his physician.

Dr. Friesen: Is the danger of malignancy great enough to warrant excision of every cryptorchid testicle?

Dr. Donald: If it is made accessible to examination, if the danger is made known to the patient, and if there is an adequate examination at frequent intervals, excision need not be done.

Dr. Friesen: Why should this testicle be saved?

Dr. Donald: Spermatogenesis is possible if the testicle is placed in the scrotum at the age of 4 or 5. Enough patients with bilateral cryptorchidism have become parents to convince us that these testicles do function adequately, although not enough of them have been biopsied to establish any percentage. When a patient has unilateral cryptorchidism, there is always the risk that the opposite testicle may be injured. Therefore we try to save the cryptorchid testicle.

Dr. Friesen: Certainly it would be better to remove such a testicle than to leave it in the abdomen.

Dr. Donald: Yes, if it can't be brought into the scrotum, it should be removed.

Dr. Friesen: What were the findings at autopsy in this case?

Dr. Davis: A mass weighing 120 grams was found in the right lower quadrant of the abdomen. It was

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Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Peterson is a Fellow of the American Cancer Society.

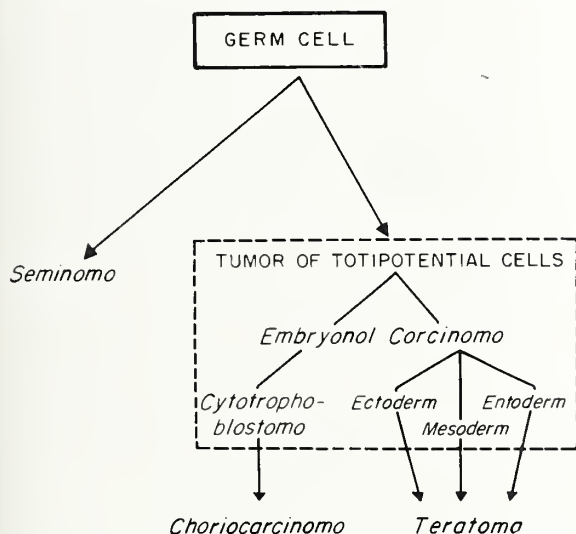
covered with peritoneum and was composed of yellow, partly necrotic tissue with numerous areas of hemorrhage. Hemorrhagic metastases were found in the lungs, both kidneys, the liver, jejunum, hilar lymph nodes, and the brain.

Dr. Boley: This type of tumor is characteristically hemorrhagic and shows large areas of necrosis. The tumor has two components, both of which must be present before the diagnosis of choriocarcinoma can be made. First, there is the cytotrophoblastic component with visible cell walls and pleomorphic nuclei. Secondly, there are syncytial masses of cytoplasm with multiple nuclei. The cells act similarly to those of the placenta in producing some substance, possibly an enzyme, which causes destruction of blood vessels with consequent hemorrhage. A small focus of tumor in the brain will cause a large area of necrosis.

Most of the malignancies we have seen in undescended testicles have been seminomas. They are the least malignant and the most sensitive to radiation, whereas choriocarcinoma is the most malignant and radioresistant.

Dixon and Moore<sup>1</sup> have postulated the origin of testicular tumors derived from germ cells as follows:

#### TUMORS OF GERM CELL ORIGIN



There are pure forms of these tumors and many combinations.

Dr. Friesen: Our second case is an example of a mixed type of tumor.

Dr. Witus: A 16-year-old boy was admitted with a chief complaint of a swollen testicle for two weeks. Two months earlier, after playing football, he first had painless swelling of the testicle without associated symptoms or known direct trauma. The swelling subsided spontaneously in five days. The second swell-

ing followed a game of basketball, again with no history of direct trauma.

The admission physical examination was within normal limits except for a firm, non-tender mass in the right hemi-scrotum. Laboratory examinations, including an Aschheim-Zondek and a frog test, were within normal limits. The x-rays, including an intravenous pyelogram, were also normal.

Intravenous pyelograms are done routinely when we suspect a tumor of the testicle. The spread of such a tumor is to the retroperitoneal lymph nodes, and enlarged nodes can produce compression or deviation of a ureter. We routinely do the frog test to detect tumors producing gonadotrophins. In this case, everything was normal except for the mass in the scrotum, which was assumed to be tumor.

Dr. Donald: Any enlargement of the testicle should be considered tumor until proven otherwise. A hydrocele can be differentiated by transillumination, and a hernia, usually by reduction. At least 75 per cent of all testicular tumors have a history of trauma, but there is no apparent causal relationship.

We feel that biopsy of a testicular tumor is not indicated. We open the inguinal canal, isolate the cord, and clamp it so that further manipulation will not disseminate tumor cells into the systemic circulation. The tumor or testicle is then brought into view and examined. It is not always possible to determine by inspection whether tumor is present, but the surgeon must decide at that time if the possibility of tumor is great enough to warrant orchidectomy. In this case, it was felt that tumor was present. The testicle was removed and the cord ligated in the inguinal canal.

Dr. Friesen: Are there any inflammatory conditions which must be differentiated?

Dr. Donald: Yes, the most common inflammatory disease is epididymitis, but this can be diagnosed by examination. Occasionally an abscess or orchitis will be diagnosed as tumor. In many of these cases the testicle would have no further function, so its removal is not a serious mistake.

Dr. Friesen: Would you expect a tumor to be non-tender and the patient afebrile?

Dr. Donald: Not necessarily. A tumor can have spontaneous hemorrhage with swelling, pain, and fever. Trauma would produce pain as in a normal testicle. I think that probably a testicle with tumor is more susceptible to injury than is a normal testicle.

Dr. Friesen: At the time of the orchidectomy, do you look for iliac nodes and examine the inferior vena cava?

Dr. Donald: This is a part of the future management. The type of tumor dictates further treatment.



so we wait for the pathological diagnosis before proceeding further.

Dr. Boley: In this case there are areas with well-differentiated teratoma showing tall columnar epithelium, lymphoid tissue, and other components. In other areas the epithelium shows hyperchromatic nuclei and pleomorphism of the cells consistent with embryonal carcinoma. This is an example of a mixed tumor as mentioned previously. We would expect the metastases to behave like embryonal carcinoma.

Dr. Donald: We must direct our management of this patient toward the most malignant cell type since the behavior of the tumor and the behavior of the metastases will mimic the most malignant component. There are two categories of further therapy, radiotherapy and surgery. The seminoma tends to be pure and is extremely radiosensitive. In these cases we feel that excision of the testicle followed by radiotherapy gives the greatest possible cure rate. All other testicular tumors are relatively radioresistant and should be treated by radical node dissection of the lymphatic drainage areas for the testicle.

In this case all lymph node bearing areas were removed from the right diaphragm to the junction of the internal and external iliac arteries. There are three areas where metastatic tumor is commonly found in lymph nodes: over the common iliac arteries, over the bifurcation of the aorta, and at the renal hilum. This patient had a large node at the bifurcation of the aorta which was firmly attached to the vena cava. It could not be dissected free so that part of the vena cava had to be sacrificed with the block dissection.

Dr. Boley: This node contained a more malignant type of tumor cell than most areas of the primary tumor. When nodes are involved, the prognosis becomes poor. In the series of Dixon and Moore,<sup>1</sup> the two-year survival rate in patients with teratocarcinoma and lymph node metastases was only 16 per cent, as compared to 59 per cent in those with no lymph nodes metastases.

Dr. Donald: More than 50 per cent of the cases of teratocarcinoma have metastases by the time of orchidectomy. These tumors occur in young active individuals and tend to metastasize early. They are frequently not noticed by the patient until groin or back pain develops.

Dr. Friesen: Dr. Witus, will you present the last case?

Dr. Witus: A 32-year-old white man was admitted with a right scrotal mass. Four months previously he had had sudden pain, tenderness, and swelling of his testicle without trauma, fever, or infection. The testicle had changed little in size since that time, but the tenderness had disappeared. He had been treated with antibiotics and stilbestrol.

At the time of admission the general physical examination was negative except for the right testicle. It was twice the normal size, hard and nodular, but non-tender. Routine laboratory examinations and x-rays were normal. An inguinal orchidectomy was done.

Dr. Boley: The tumor is composed of cells with pale, rather abundant cytoplasm and uniform nuclei. There are a few lymphocytes in the moderately abundant stroma. The amount of stroma and the variation in the nuclei does not apparently affect the prognosis. Dixon and Moore,<sup>1</sup> in their series of 990 cases, found that pain, even with seminomas, was a poor prognostic sign. When pain was present, there were only about one-third as many survivors in patients with seminoma, embryonal carcinoma, and teratoma as when there was no pain. Those with urinary gonadotrophins also had a poorer prognosis.

Dr. Fink: When a patient with a seminoma has urinary gonadotrophins, isn't he likely to have a nodule of choriocarcinoma that has not been recognized?

Dr. Boley: Yes, either that or embryonal carcinoma. There are 15 different combinations of the various tumors of germ cell origin, and rules for the pure types do not hold for the combinations, either for prognosis or therapy.

Dr. Tice: When pure, the seminoma is so radiosensitive that one might consider using radiotherapy alone if the diagnosis could be determined without orchidectomy. We started radiotherapy in this patient about four days after the orchidectomy. He received therapy to the pelvis similar to that given for carcinoma of the cervix, and 1500r was directed to the retroperitoneal lymph nodes. I have treated two patients having palpable metastases with survivals thus far of 10 and 15 years.

Dr. Friesen: These three cases have been informative. Cryptorchidism deserves early attention. We must consider an undiagnosed mass in the scrotum as tumor, even before we consider inflammation. We should remember that many testicular tumors are mixed in type and that their most malignant component will limit the effectiveness of therapy.

## Bibliography

1. Dixon, Frank J., and Moore, Robert A.: *Atlas of Tumor Pathology, Section VIII, Fascicles 31b and 32, Tumors of the Male Sex Organs*, Washington, D. C., Armed Forces Institute of Pathology, 1952, pp. 48-104.

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Speeding was blamed for 13,830 deaths on U. S. highways in 1956.

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Men were drivers in 89.7 per cent of fatal accidents on U. S. highways in 1956.

# Milk-Alkali Syndrome

## *Its Pathogenesis and Report of Three Cases*

KEITH W. GALLEHUGH, M.D., *Tacoma*

In 1922 Grant<sup>21</sup> first observed that alkalosis occurred as a result of using Sippy powders (calcium carbonate, sodium bicarbonate, and magnesium oxide) in the treatment of peptic ulcer. The following year Hardt and Rivers<sup>22</sup> reported symptoms of azotemia in patients with duodenal ulcer treated by the same method. These symptoms were accompanied by renal changes, increased blood urea, and either normal or increased carbon dioxide combining power. Hardt and Rivers noted that patients with renal complications were more inclined to develop these toxic manifestations and to develop them to a much greater degree. They discovered that the alkalosis and azotemia improved when the milk and alkali regimen was stopped. In 1936 Cope<sup>11</sup> noted a considerably elevated serum calcium level in several patients with this clinical picture.

Burnett and associates,<sup>7</sup> in 1949, reported six patients presenting the following characteristic features: hypercalcemia without hypercalcuria or hypophosphatemia, normal alkaline phosphatase, marked renal insufficiency with azotemia, mild alkalosis, and calcinosis manifested especially by an ocular lesion resembling band keratitis. The six patients all showed clinical improvement on low milk and absorbable alkali intake. These patients gave a history of prolonged and excessive intake of milk and absorbable alkali (sodium bicarbonate). Since Burnett's paper was published, this group of symptoms has been referred to as Burnett's syndrome or the milk-alkali syndrome. The latter term will be used throughout this paper.

In all six of Burnett's cases there were ocular lesions similar to those described by Walsh and Howard<sup>42</sup> in patients having hypercalcemia of varied etiology. The conjunctival lesions were small glass-like particles in the conjunctivae of the palpebral fissure area. The changes in the cornea consisted of hazy, gray, granular epithelial and subepithelial deposits running concentrically with the limbus on either the nasal or temporal side or both. These lesions may be confused with arcus senilis.

This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Gallehugh is now serving his internship at U. S. Army Madigan Hospital, Tacoma, Washington.

Kyle<sup>29</sup> recently emphasized the difficulty in clearly differentiating hyperparathyroidism from the milk-alkali syndrome. In his opinion, clinical improvement on a diet low in calcium and absorbable alkali may be the most important differentiating feature. Waife<sup>41</sup> has observed that patients with hyperparathyroidism often have an acute onset of epigastric pain, vomiting, and constipation.

Hyperparathyroidism is characterized by hypercalcemia and hypercalcuria which eventually results in renal failure. However, when renal failure occurs as a late complication, the low serum phosphorus and the hypercalcuria may disappear, and, as in the milk-alkali syndrome, hypercalcemia without hypercalcuria occurs. Schneider<sup>34</sup> also recognized the difficulty in differential diagnosis. He points out that in about one-third of patients having hyperparathyroidism there is skeletal damage, pathognomonic radiologic findings of osteitis fibrosa cystica, and absence of dental lamina dura. The milk-alkali syndrome does not cause skeletal damage.

The following three cases of the milk-alkali syndrome were seen at the University of Kansas Medical Center and are presented to illustrate the importance of vomiting in the pathogenesis of this syndrome.

Case 1, a 49-year-old white man was admitted on November 22, 1955, via the emergency room with the chief complaint of epigastric pain. The patient had been known to have duodenal ulcer since 1937 with recurrent episodes of epigastric pain. He never stayed on good management and continued to use alcohol and smoke two packs of cigarettes daily. He had had two episodes of gastrointestinal bleeding, the last occurring one month prior to admission. He had been hospitalized one month prior to admission and released on dietary management, aluminum hydroxide gel (Amphogel) and methantheline bromide (Banthine). He continued to have epigastric pain and complained of nausea and vomiting each evening. He presented himself to the hospital with the idea of having surgical resection. He had lost 20 pounds of weight during the preceding year.

In 1943 the patient was exposed to carbon tetrachloride and methyl bromide which was followed by a month's illness characterized by coma and generalized anasarca.



On admission, temperature, pulse, and respiration were normal. The blood pressure was 180/105. Ophthalmological examination revealed some retinal vessel narrowing and mild A-V nicking. The liver was palpable one fingerbreadth below the right costal margin. The remainder of the physical examination was within normal limits.

The urine showed a specific gravity of 1.006, with an alkaline reaction and a negative test for sugar and albumin. On microscopic examination many white blood cells and numerous crystals were found. Examination of the blood disclosed 12.5 gm. of hemoglobin per 100 cc., a red blood cell count of 3,780,000 per cubic millimeter, and a white cell count of 7,500 per cubic millimeter, with 73 per cent neutrophils, 3 per cent nonsegmented neutrophils, 22 per cent lymphocytes, 4 per cent monocytes, and 1 per cent eosinophiles. The V.D.R.L. test was negative. The platelet count was 293,000 per cubic millimeter. The reticulocyte count was 1.6 per cent.

Blood chemistry studies showed a blood urea nitrogen of 53.2 mg. per 100 cc., serum calcium 6.6 mEq., serum phosphorus 2.0 mEq., non-protein nitrogen 55 mg. per 100 cc., fasting blood sugar 92 mg. per 100 cc., serum sodium 145 mEq., serum potassium 3.5 mEq., chloride 90 mEq., and carbon dioxide combining power 37.3 mEq. The free hydrochloric acid in an evening aspirate was 48 degrees, total acid was 100 degrees. A phenolsulfonphthalein test revealed 3.3 per cent of the dye excreted in 15 minutes and 17.3 per cent in one hour. The blood ammonia was 91 mg. per 100 cc., serum bilirubin 0.1 mg. direct, 0.5 mg. per cent total; alkaline phosphatase 1.1 millimol units; bromsulfonphthalein 2 per cent retention at 20 minutes; cephaline cholesterol flocculation negative; thymol turbidity 4 units; serum lipase 0.5 mg. per 100 cc.; serum albumin 4.7 gm. per 100 cc.; serum globulin 2.48 gm. per 100 cc.; serum iron 60 gamma per 100 cc.; serum amylase 56 mg. per 100 cc.; cholesterol 327 mg. per 100 cc. with 70 per cent esters.

The electrocardiogram revealed flattening of the T waves throughout the tracing and suggestion of early left ventricular hypertrophy. Radiologic examination showed a normal chest and heart. The kidney-ureter-bladder film revealed relatively large kidneys on both sides. Upper gastrointestinal series revealed a marked deformity of the duodenal bulb consistent with ulcer. At the time of gastrointestinal studies there was no evidence of obstruction. Skin test for histoplasmosis was positive; other skin tests were negative at 48 hours. Sulkowitch test revealed a decreased urinary calcium excretion. Stools for blood were negative on two occasions.

After admission, the patient was started on nightly gastric aspirations. The first of these were 925 cc.

and 1300 cc. He was placed on management consisting of milk on the hour during the day and every two hours at night and magnesium trisilicate and aluminum hydroxide (Gelusil) on the half hour.

At first it seemed obvious that his electrolyte disturbance and elevated blood urea nitrogen were due to renal disease which he had sustained in an accident many years ago. However, it was learned that this man had taken extremely large quantities of milk and antacids for many years. At that time the serum calcium was checked and found to be 6.6 mEq., and it was felt that this pattern of renal insufficiency probably was due to the milk-alkali syndrome. He was then taken off milk and left on Gelusil and a six-feeding bland diet which he tolerated well. His electrolytes returned to normal and the blood urea nitrogen fell to 49 mg. per 100 cc. While he was under observation in the hospital, his blood pressure remained elevated. However, by the time of dismissal it was in the order of 160/85. The surgeons suggested further medical management. After 15 days in the hospital, the patient was discharged on a six-feeding bland diet and frequent magnesium trisilicate and aluminum hydroxide (Gelusil).

Case 2, a 46-year-old white man, was admitted on November 26, 1955, with a chief complaint of "vomiting blood." He had been well until November 1953, when he began to have severe abdominal pain. In January of 1954 he had his first episode of hematemesis which lasted for one day. He was not hospitalized or transfused. In June of 1955 he became jaundiced and began to lose weight. He consulted his local physician who told him that he had "malaria fever" and gave him some pills. He did not have chills or fever. The jaundice subsided and he apparently was well until September 1955, when he began to have trouble with "gas" which was relieved by vomiting. This was usually worse about one hour after eating and occasionally awakened the patient at night.

One month prior to admission he had an episode of hematemesis and melena which lasted several days. Two weeks prior to admission at the University of Kansas Medical Center, he was hospitalized for eight days and given seven units of blood. After discharge he was placed on a soft diet and aluminum hydroxide gel (Amphogel) every two hours while awake. Two days prior to admission, the patient vomited a large quantity of bright red blood with no subsequent bleeding. A review of the patient's systems revealed he had been taking enemas three times a week for many years for constipation.

On admission, temperature, pulse, and respiration were normal. The blood pressure was 90/40. The skin was slightly jaundiced. The extremities showed



wasting of muscles most marked in the shoulder girdle and upper arm. The remainder of the physical examination was within normal limits.

The urine showed a specific gravity of 1.011, with an alkaline reaction and a negative test for sugar and albumin. On microscopic examination a few casts and occasional white blood cells were seen. Examination of the blood disclosed 7.5 gm. of hemoglobin per 100 cc., a red blood cell count of 2,890,000 per cubic millimeter, and a white cell count of 5,400 with a normal differential. The hematocrit was 22 per cent.

Blood chemistry studies showed a serum calcium of 8.3 mEq.; serum phosphorus 1.2 mEq.; non-protein nitrogen 29.2 mg. per 100 cc.; serum sodium 140 mEq.; serum potassium 5.0 mEq.; serum chloride 103 mEq. per 100 cc.; carbon dioxide combining power 27 mEq.; total protein 5.68 gm. per 100 cc.; serum globulin 1.78 gm. per 100 cc.; serum albumin 3.82 gm. per 100 cc. The serum iron was 20 gamma per 100 cc. A 24-hour urine for creatinine showed 445 mg. per 1180 cc. of urine. The hepatogram was normal. The electrocardiogram was normal. Radiologic examination showed a normal chest and abdomen. A barium meal revealed that the stomach was obstructed at the gastric outlet—no ulcer was identified.

The patient was placed on a six-feeding bland diet and was given two pints of whole blood the day of admission and one pint the following day. He was started on a regimen of milk and magnesium trisilicate and aluminum hydroxide (Gelusil). On December 2, 1955, this was discontinued and he was started on milk and calcium carbonate. On December 12, 1955, the serum calcium was found to be 8.3 mEq. and the serum phosphorus 1.2 mEq. At that time the calcium carbonate was discontinued and aluminum hydroxide gel (Amphogel) substituted. Following this the serum calcium level dropped to 3.9 mEq. and serum phosphorus to 0.29 mEq. Again the regimen was changed to milk and calcium carbonate following which the serum calcium level increased to 2.1 mEq. and the non-protein nitrogen dropped from 77 to 49 mg. per 100 cc.

The patient was discharged after 20 days in the hospital on a six-feeding soft ulcer diet, calcium carbonate, 4 grams (two drams) three times per day, and milk 120 cc. (four ounces) every two hours.

Case 3, a 56-year-old white man, was admitted on October 30, 1956, with the chief complaint of stomach pain. The patient had been treated for peptic ulcer since 1940. In July 1947 he had had a perforation of his duodenal ulcer which was repaired by suturing. In January 1948 he became obstructed and had a gastrotomy. Following this he did fairly

well on diet alone until May 1954, when he developed pain which again was treated with diet. On September 26, 1955, the patient suddenly developed nausea and vomiting and had severe abdominal pain which began approximately at 11:00 a.m. each morning. The pain required meperidine (Demerol) for two weeks prior to admission. The vomiting persisted until the time of admission.

On admission, temperature, pulse, and respiration were normal. The blood pressure was 140/80. The physical examination revealed healed right and left paramedian surgical scars. The examination was otherwise negative.

The urine showed a specific gravity of 1.022, with an acid reaction, a slight trace of albumin, and a negative test for sugar. On microscopic examination, occasional hyalin, waxy, and granular casts and 2-5 white blood cells per high power field were found. Examination of the blood revealed 16.5 gm. of hemoglobin per 100 cc., a white blood cell count of 7,900 per cubic millimeter, and a red blood cell count of 5,700,000 per cubic millimeter. The differential showed 58 per cent neutrophils, 1 per cent nonsegmented neutrophils, 33 per cent lymphocytes, 8 per cent monocytes and 1 per cent basophiles. The V.D.R.L. test was negative. Blood chemistry studies showed a blood urea nitrogen of 20 mg. per 100 cc., a fasting blood sugar of 70 mg. per 100 cc. The erythrocyte sedimentation rate was 20 mm. per hour. Stool examinations for occult blood were positive. Radiologic examination showed a normal chest, gallbladder, and colon. A barium meal revealed a post-operative stomach with enterostomy having little function and an ulcer present in the pyloric canal.

He was started on a regimen of calcium carbonate, milk, and cream. After eight days he was started on a liberal bland diet. Gastroscopy was done and revealed hypertrophic changes in the mucosa. He was discharged on November 9, 1955, on a liberal bland diet and a prescription for calcium carbonate and magnesium carbonate.

He was readmitted on March 21, 1956, with the chief complaint of vomiting. He had been well until March 17, 1956, when he began to vomit. The patient was unable to keep anything in his stomach until the morning of March 21, 1956, when he was able to drink small amounts of water without vomiting.

At the time of admission the blood pressure was 130/70. The pulse was 80 with occasional premature ventricular contractions. The tongue was dry and furrowed. There was minimal tenderness in the epigastrium three fingerbreadths below the xiphoid process.

The urine showed a specific gravity of 1.008, with an alkaline reaction, a faint trace of albumin, and a

negative test for sugar. The red blood cell count was 5,200,000 per cubic millimeter, white blood cell count 11,650 with a normal differential. Blood chemistry studies showed a blood urea nitrogen of 68 mg. per 100 cc., serum calcium 8.0 mEq., creatinine 5 mg. per 100 cc., serum sodium 138 mEq., serum potassium 3.2 mEq., carbon dioxide combining power 44.2 mEq., serum chloride 73 mEq. Radiologic examination of the gastrointestinal tract revealed a duodenal ulcer with marked deformity of the duodenal bulb. There were low grade obstructive changes.

On admission the patient was given 2,000 cc. of 5 per cent glucose in normal saline with 60 mEq. of potassium chloride followed by 200 mEq. of ammonium chloride intravenously. The patient showed marked improvement and was discharged on March 24, 1956.

## Discussion

Several theories have been postulated concerning the pathogenesis of the milk-alkali syndrome, but the subject is still highly controversial. All theories seem to agree, however, that development of the syndrome depends upon renal insufficiency.<sup>4,7,25</sup>

Bland<sup>6</sup> believes renal insufficiency is probably caused by intrarenal calcification and potassium depletion resulting in a characteristic degenerative tubular lesion. This belief is supported by the work of Becker<sup>3</sup> who recently reported renal parenchymal calcification in 36 per cent of 99 patients who had active or healed duodenal ulcer. He postulated that these patients had ingested large amounts of calcium and had also suffered from asymptomatic and transient episodes of alkalosis.

An explanation for intrarenal calcification has been offered by Snapper et al.<sup>38</sup> They believe that calcium is deposited preferentially in organs where the excretion of acid results in a temporary tissue alkalosis, viz., kidney, stomach, and lung. Development of renal insufficiency seems to depend, therefore, upon either hypercalcemia or metabolic alkalosis or both. Burnett et al.<sup>3</sup> suggest that acute renal insufficiency occurring during alkalosis resembles lower nephron nephrosis (acute tubular necrosis) in some respects.

Renal failure associated with hypercalcemia has been observed in various diseases including hyperparathyroidism, acute osteoporosis, hypervitaminosis D, sarcoidosis, and generalized carcinomatosis with metastatic bone involvement.

Peptic ulcer therapy rarely, if ever, produces hypercalcemia unless alkalosis occurs.<sup>25</sup> Wolf and Ball<sup>24</sup> studied the problem of hypercalcemia without alkalosis and concluded that the plasma concentration of calcium is apparently not regulated by renal func-

tion. It has been postulated, however, that alkalosis plays a role in the renal excretion of calcium. It has been demonstrated that alkali administration decreases urinary calcium excretion<sup>1</sup> while ammonium chloride ingestion results in increased calcium excretion.<sup>19</sup> The observation that orally administered inorganic phosphate decreases the urinary excretion of calcium is also of importance.<sup>2</sup> The pertinence of this experimental evidence is apparent when one considers the fact that milk contains, in addition to calcium, large amounts of phosphate.

Although sodium bicarbonate was the usual alkali used by Burnett's patients, this syndrome has also been observed in patients using only calcium carbonate, generally considered to be a non-absorbable alkali. Ogle<sup>33</sup> was the first to report a case of the milk-alkali syndrome developing in a patient who was receiving only calcium carbonate, although numerous other investigators<sup>11,20,35,44</sup> have reported alkalosis occurring in patients receiving calcium carbonate. This problem was studied as early as 1941 by Kirsner and Palmer.<sup>26</sup> They believe that a chloride deficiency develops in certain patients treated with calcium carbonate.

Several mechanisms for the chloride deficiency have been suggested, including a low intake of sodium chloride, loss of chloride from vomiting or from aspiration of the gastric contents, and increased excretion of chloride in the feces. Peters<sup>48</sup> believes that part of the carbonate ion may be absorbed into the blood. Ogle has pointed out that calcium carbonate reacts with the hydrochloric acid in the stomach to produce calcium chloride. Although some of the calcium chloride may be absorbed, it is believed that the bulk of it is reconverted to insoluble calcium salts in the alkaline secretions of the small intestine. The formation of calcium chloride may contribute, in part, to the chloride deficiency.

Another important theory attempting to explain the pathogenesis of this syndrome is that concerning the importance of previous renal damage in the development of alkalosis during treatment with alkaline powders.<sup>4</sup> Wilkinson and Jordan<sup>45</sup> studied this problem in 1939. They determined the renal clearance with sulfate before and after alkalosis and concluded that previous renal damage had been present in most of their cases.

In 1942 Kirsner and Palmer<sup>27</sup> studied the problem further. They gave large amounts of absorbable alkali (calcium carbonate and sodium bicarbonate) to a number of patients who had impaired renal function without the development of alkalosis although they produced alkalosis in patients with normal renal function. They found the incidence of alkalosis to be higher in patients with massive gastrointestinal



hemorrhage or patients who had lost gastric juice either by vomiting or therapeutic aspiration.

McGee<sup>3</sup> considered this problem in 17 patients with normal kidneys. He gave these patients 20-30 grains of a mixture of calcium carbonate and magnesium oxide every hour from 7:00 a.m. to 9:00 p.m. for eight days. Although the blood urea nitrogen and carbon dioxide combining power did not change significantly, urea clearance fell 30 per cent in ten of the patients. Jeghers and Lerner<sup>24</sup> believe that factors other than an excessive intake of alkali must be present before patients with normal renal function develop alkalosis.

Another consideration which has been little more than mentioned in the medical literature is that concerning potassium depletion as an etiologic factor in the pathogenesis of the milk-alkali syndrome. It is well known that alkalosis of body fluids is associated with a loss of potassium. Bland states that whenever metabolic alkalosis is present, potassium depletion may be assumed to be present.

The fact that loss of gastric contents due to vomiting contributes to the pathogenesis of this syndrome is apparent from the three cases reported in this paper. All three of these patients gave a history of vomiting prior to the development of the syndrome. It is conceded that this series is too small to be statistically significant; however, 18 of 35 cases reviewed in the literature also gave a history of vomiting. No attempt was made in reviewing the literature to study potassium depletion in previously reported cases since levels of serum potassium do not necessarily reflect the state of depletion or repletion of body potassium.<sup>40</sup>

It has been noted that when potassium depletion and metabolic alkosis occur, two sodium ions and one hydrogen ion move into the cell to replace three potassium ions moving out to be excreted in the urine. When hydrogen ions move from the extracellular space to the intracellular space, the extracellular space is left with a high concentration of bicarbonate and the intracellular space has an increased acidity. Thus an intracellular acidosis and an extracellular alkalosis occur.<sup>9, 12, 13</sup>

In the renal tubular mechanism for the reabsorption of sodium, a competition for the secretion of hydrogen and potassium exists.<sup>5</sup> When primary alkalosis occurs, a decreased availability of hydrogen ions allows potassium to be lost in exchange for sodium. During potassium depletion potassium would be less available and hydrogen ion loss would be favored. This mechanism, together with the movement of hydrogen ions into cells, augments the alkalosis.

Bland states that, "Alkalosis and potassium loss can occur simultaneously and act in concert to per-

petuate one another. Alkalosis promotes markedly increased renal excretion of potassium."

It has been shown that experimental depletion of potassium produces renal tubular lesions in rats.<sup>39</sup> Recently Relman and Schwartz<sup>37</sup> studied renal tubular changes in patients with potassium depletion. Renal biopsies were obtained from three of the patients. They observed marked swelling of the epithelium of the proximal tubules and diffuse foamy degeneration of the cytoplasm. Similar lesions have been observed in two patients who were treated with large doses of cortisone.<sup>37</sup> Relman et al. noted that these lesions also developed as a secondary complication in kidneys which were already diseased. They point out that potassium depletion may severely impair tubular function, but apparently it is not likely to produce overt uremia without other contributing factors. The renal dysfunction is more severe when potassium depletion occurs as a complication of pre-existing renal disease.

It is well known that any type of stress results in an increased secretion and increased cellular utilization of adrenocortical steroids. These substances also produce a disturbance in acid-base balance characterized by a hypochloremic alkalosis. This is associated with a negative potassium balance and therefore may be called a hypokalemic alkalosis.

It is generally agreed that emotional factors and stress are of significance in the etiology of peptic ulcer. It seems probable that these factors also contribute to the pathogenesis of the milk-alkali syndrome through secretion of adrenocortical steroids, alkalosis, and potassium depletion.

Finally, it is quite obvious that no single factor is etiologic in the development of the milk-alkali syndrome and that a number of factors are operating concomitantly to produce this group of symptoms. This is shown graphically in Figure 1.

## Summary

### 1. Three cases of the milk-alkali syndrome which

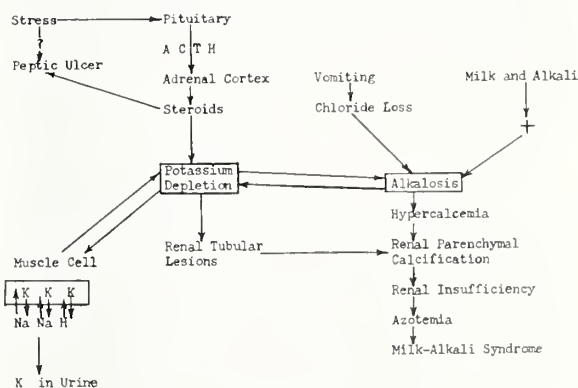


Figure 1



were seen at the University of Kansas Medical Center are presented to illustrate the importance of vomiting in the pathogenesis of this syndrome.

2. The literature is reviewed and the present theories of pathogenesis are presented.

3. Evidence is presented that potassium depletion may be important in the development of this syndrome.

4. No single factor is etiologic in the pathogenesis of the milk-alkali syndrome.

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## ANNOUNCEMENTS

Courses in histochemistry, University of Kansas Medical Center, June 9-14 and June 16-21. Write Department of Postgraduate Education, University of Kansas School of Medicine, Kansas City 12, Kansas.

Annual meeting, American Goiter Association, St. Francis Hotel, San Francisco, June 17-19. Information available from Dr. John C. McClintock, 1491 1/2 Washington Avenue, Albany 10, New York.

Scientific meeting, Gerontological Society, Inc., Bellevue Stratford Hotel, Philadelphia, November 6-8. Co-chairmen are Dr. Warren Andrew, Bowman Gray School of Medicine, Winston-Salem, North Carolina, and Dr. Joseph T. Freeman, 1530 Locust Street, Philadelphia 2.

Courses offered by New York University Postgraduate Medical School, 550 First Avenue, New York 16: symposium on modern therapeutics in internal medicine, June 9-20; management of chronic kidney disease, June 23-24; acute neurological problems of general practice, June 23-27; management of hypertension, June 25-26; general medicine review, July 7-18; auscultation of the heart, July 16-18.

Postgraduate course in geriatric medicine, with special emphasis on heart disease and psychosocial problems of later life, Washington University School of Medicine, Euclid Avenue and Kingshighway, St. Louis, May 24 and 25. Tuition free. Category I credit, AAGP.

Trudeau School of Tuberculosis and Other Pulmonary Diseases, Saranac Lake, New York, June 2-20. Address inquiries to Box 500, Saranac Lake. Enrollment limited.

Course in occupational medicine, September 15-

November 7, offered by New York University Postgraduate Medical School, 550 First Avenue, New York 16, New York.

Postgraduate refresher course, University of Southern California School of Medicine, August 5-21, offered in Honolulu and on board the *SS Matsonia*. Courses offered by specialties, based on actual case histories. Write Director of Postgraduate Division, USC School of Medicine, 2025 Zonal Avenue, Los Angeles 33.

Veterans Administration Office, 49 Fourth Street, San Francisco, announces vacancies for Medical Rating Specialists at \$8,645 per annum to sit on board to rate claims of former members of the armed forces for disability compensation.

Applications now being accepted for certification, new and reopened, American Board of Obstetrics and Gynecology, Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio. Deadline for applications, September 1.

Courses offered by University of Colorado Medical Center, 4200 East Ninth Avenue, Denver: clinical hematology, June 16-21; dermatology for general practitioners, July 10-12; prevention and management of athletic injuries, August 25-27.

Annual course in postgraduate gastroenterology, Jung Hotel, New Orleans, October 23-25, auspices of American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

Good will tour to countries of the Orient following International Congress of Ophthalmology in Brussels in September. All physicians welcome. Write Compass Travel Bureau, 55 West 42nd Street, New York 36, New York.

The program of socialized medicine in Great Britain is becoming more expensive, according to a report made recently by the National Health Service. Fees paid by those using the service and by employers are to be raised in July. It is estimated that a total of \$2,072,000,000 will be needed for maintaining the service during the coming fiscal year.



## BOOK REVIEWS

*Surgery in World War II. Ophthalmology and Otolaryngology. Editor in Chief, Col. John Boyd Coates, MC. Published by Office of Surgeon General, Department of the Army, Washington, D. C. 605 pages. Price \$5.00.*

The volumes comprising the history of the Medical Department of the U. S. Army in World War II are divided into two series: (1) the administrative and operational series which constitutes a part of the general series of the U. S. A. in World War II; and (2) the professional, or clinical and technical, series. This is one of the volumes published in the latter series. It contains data accumulated and summarized as of 1947, although published in 1957.

This book is a good factual account of the combined administrative and professional problems which were met by our specialties in wartime. The authors happily resisted the temptation to list statistics and gave an interesting, running commentary instead.

The ophthalmology portion is especially well documented and much more complete. The type of problems confronted, the method of solution, and the lessons learned are detailed for the ZI (Zone of Interior) as well as the ETO and PTO (overseas theaters of operations).

The problem of availability and the utilization of personnel was foremost. During World War II only one-third of all the qualified ophthalmologists were in the ZI, while two-thirds were overseas. Since the total number available was always inadequate, the successful development of "specialty centers" in which problem cases were grouped became one of the most effective accomplishments of the war. The use of top men, in uniform, as regional consultants was another great forward step although it was not utilized sufficiently in the ZI.

The special problems of refraction in ZI and overseas, including the issue and supply of glasses; the development of the acrylic false eye; the training and rehabilitation of the blind; the medical management and the evacuation of combat injuries including foreign bodies of the eye; the plastic reconstruction of the eye and associated facial deformities—all of these make dramatic reading. The day-to-day routine overload in the outpatient clinics of the hospitals, the training centers, induction centers, staging areas, and overcrowded camps in general is not forgotten, and due credit is offered to the members who carried on this big, necessary, but non-glamorous job.

The otolaryngology section is less complete and much less effective, although some attempt at presenting clinical problems is made. Details are limited to the experiences of a few top men in ETO. Except

at Hearing and Facial Nerve Centers, special grouping of otolaryngologists was not feasible. Head and neck war injuries were routed to maxillofacial teams. Otolaryngologists were seldom involved since maxillofacial teams were controlled separately and did not usually include an ENT surgeon. The rehabilitation of the deafened was outlined, and a limited analysis of acoustic trauma was included.

Not discussed was the tremendous, routine work of the ENT outpatient staffs and their success in keeping men on the duty roster.—J.A.B.

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*Current Therapy 1958. By Howard F. Conn, M.D. Published by W. B. Saunders Company, Philadelphia. 827 pages. Price \$12.*

Do you occasionally face an unusual therapeutic situation—one with which you deal so rarely that you are not certain of the details of the regimen? Do you perhaps wonder whether the treatment you learned in school or the one in your not too up-to-date textbooks and monographs has been superseded? If so, you will want to look into *Current Therapy*.

This is a rather large book which is revised annually by the editor, 12 consulting editors, and nearly 300 contributors. Many hands make light work, and it is unlikely that adequate annual revisions could be made without the cooperative efforts of so many men, each an authority in his field. Multiple author books are inevitably uneven in style and quality, and not every contributor can be rated as a "top authority."

The articles are of necessity synoptic if not telegraphic. The practitioner will usually find the information he requires, but the reader who wishes a discussion of details and theory will have to look elsewhere. The general level of coverage is good, and one is therefore surprised to find dermatomyositis and systemic lupus erythematosus included in the section on dermatology—certainly not a current concept of classification.

The book is well printed, bound, and indexed, and several tables will be welcome to most physicians. They include a "roster of drugs," pediatric dosages, normal laboratory values, etc. In addition there is a section on poisons which contains a reference list of poisonous substances in common household and commercial products.—J.D.R.

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*Strabismus Ophthalmic Symposium II. Edited by James H. Allen, M.D. Published by C. V. Mosby Company, St. Louis. 552 pages, 251 illustrations. Price \$16.*

This volume represents the opinions of leading ophthalmologists on diagnosis and treatment of strabismus. The anatomy of the extraocular muscles



is well compiled and illustrated. The chapters outlining non-surgical treatments of strabismus are worthy of review by all ophthalmologists. This is not meant to be a surgical text; only some specific techniques are described in the surgical treatment of strabismus.

The text compiles the series of lectures on strabismus given for the symposium at the New Orleans Academy of Ophthalmology. The text presents a well edited result of these separate lectures.—*D.O.H.*

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*General Pathology. Second Edition. Edited by Sir Howard Florey. Based on lectures delivered at the Sir William Dunn School of Pathology, University of Oxford. Published by W. B. Saunders Company, Philadelphia. 932 pages, illustrated. Price \$16.*

As the title indicates, the book deals with general pathology as an introduction to conventional special pathology with no pretext to cover the latter subjects. Much of the latter part of the book deals with microbiology.

The author's aim to arouse an inquiring attitude in the reader should be achieved. The book would seem best suited as ancillary material for the beginner in the study of pathology. A significant knowledge of the history of medicine will also be acquired.

Figure 9, page 477, would appear to be a neurilemmoma or leiomyoma rather than a "benign fibroma" which it is intended to illustrate.—*J.O.B.*

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*Diabetes As A Way of Life. By T. S. Danowski, M.D. Published by Coward-McCann, Inc., New York City. 177 pages. Price \$3.50.*

This book is a guide for diabetics. There is no doubt that it contains information which would be helpful and reassuring in assisting the diabetic to live successfully and with confidence. The book is comprehensive in its scope. There are 16 chapters and an appendix which explain the nature of diabetes as the problem of an individual, his family, and close associates in the community. The role of the physician is stressed but it is pointed out that "most of the time diabetes is treated either by the patient or his family."

There are details about food, diets, and metabolism; the use of insulin, acidosis, coma, insulin shock, diabetes in children, pregnancy and diabetes, infections and diabetes, medical quacks, sulfa drug derivatives given orally as substitutes for insulin, the social aspects of diabetes, and much other pertinent information. There are numerous charts, diagrams, illustrations, and tables.

The information is not presented in an overly technical manner, but there is such a vast amount of detail that only a rather intelligent adult with the

ability to study and readily organize what he learns would be expected to profit by reading and self-study of this guide. A newly diagnosed diabetic might be overwhelmed and confused by this wealth of information.

This would be an excellent guide to the physician in indicating the many things a diabetic and his family should know about the disease. It would also serve well as a textbook for diabetics enrolled in classes of instruction and information provided by some physicians, clinics, or local health departments. The physician or nurse would not have time to guide each individual diabetic patient or family member through each chapter of the book.

Nowhere does this guide suggest that diabetes is a public health problem, that is, a health problem subject to some alleviation through organized community effort. There is, however, a "roster of lay diabetes societies" and a reference address of the American Diabetes Association.—*R.H.R.*

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*The Peter T. Bohan Memorial Lectures on Medicine. First Series. By Peter T. Bohan, M.D. Published by University of Kansas Press, Lawrence, Kansas. 128 pages. Price \$3.00.*

This readable little book printed with large type and with wide margins records the Peter T. Bohan lectures from the year 1947, when Dr. Russell L. Haden gave the initial address, through 1954, when Dr. Roy W. Scott presented his lecture. These seven lectures represent rather widely varied topics, all with an intimate application to the practice of internal medicine.

This is not a book to be laboriously studied but is delightful bedside reading, and for those who attended the lectures it will refresh the memory of the unique and learned lecturers who delivered them. There is little in this book that is outdated by the intervening years, and the personal anecdotes and the kindly philosophies in these addresses are heart-warming and worthy of remembrance.—*J.L.M.*

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*For Future Doctors. By Alan Gregg, M.D. Published by the University of Chicago Press, 1957. 165 pages.*

Alan Gregg will long be remembered as an outstanding representative of that rare profession, the philanthropic investigator. He graduated from Harvard with an M.D. and immediately joined the staff of the Rockefeller Foundation, serving first as its associate director of medical education and then as director of medical sciences for 30 years, at which time he became vice-president. This little book is a series of 11 lectures and articles related to medical

education and its related fields; in them one finds much that even experienced physicians would not only enjoy but from which they would benefit.

As an essayist he has a refreshing style which contrasts markedly from the usual articles related to medical education and research. The following two examples will bear this out: "And they say medical education is expensive! It is unsatisfactory medical education that is expensive." . . . "This is what I mean when I say there are plenty of M.D.'s in this world but not enough real doctors."

This book, no doubt, was written for future doctors. Those who are responsible for the guidance, recruiting, training, and placement of young men and women in the profession will be pleased with its pithy, wholesome advice, for Dr. Alan Gregg was a world traveler acquainted not only with American ways but versed in the methods of older cultures. It is a compilation of delightful essays that will long endure.—*P.G.R.*

### Accreditation of Nursing Homes

The need for accrediting nursing homes and other institutions providing care for chronically ill patients is so acute that unless a voluntary program is established, government will fill the void, the director of the Joint Commission on Accreditation of Hospitals said recently.

Dr. Kenneth B. Babcock, director of the Joint Commission, discussed accreditation developments during the five years since the founding of the Commission in an interview published in the January 1 issue of *Hospitals*, Journal of the American Hospital Association.

Answering a question on the priority of establishing an accreditation program for nursing home and chronic care facilities, Dr. Babcock said, "It would have topmost priority as a need. I am unwilling to say the Joint Commission on Accreditation is the vehicle which should do it.

"The problem is so pressing that if the voluntary agencies like the member organizations of the Joint Commission do not take it over, the government is going to have to," he said.

Doctor Babcock pointed out that, "The idea of better quality health care in our communities through surveying of every facet of care whether it be domiciliary or actual clinical medical care is an important one."

Pointing out that the standards of the Joint Commission are "a floor, not a ceiling," Doctor Babcock said that the future program of the Commission will undoubtedly include "a tightening of the present standards and an increase in the standards to the extent that it may be harder to become accredited than it has been in the past."

The Joint Commission on Accreditation of Hos-

pitals in a voluntary program surveys hospitals and accredits them providing they meet specified standards of patient care. The Joint Commission is sponsored by the American College of Physicians, the American College of Surgeons, the American Hospital Association, the American Medical Association, and the Canadian Medical Association.

### Committee Studies Medicolegal Problems

A concerted educational program on medical professional liability is being formulated by a joint committee of the American Medical Association and the American Hospital Association. Among other things, the liaison committee plans to study current medicolegal advisory set-ups in a number of states, the liability of charitable and governmental hospitals, and ways of promoting postgraduate education in the professional liability field. Progress reports will be submitted to the boards of trustees of the two associations, and physicians and hospital personnel will be kept informed on all action taken through the organizations' official publications.

### New Medicolegal Film in June

The A.M.A. Law Department announces that "traumatic neurosis" will be the subject of the third film in the series of six medicolegal films to be produced in cooperation with the Wm. S. Merrill Company of Cincinnati. The film will delve into some of the problems that face psychiatrists and neurologists in identifying patients' psychoses resulting from various traumatic experiences. Physicians will have an opportunity to see the premier showing of this film at the A.M.A.'s annual meeting in June in San Francisco.

Previous motion pictures in the series include "The Medical Witness" and "The Doctor Defendant." Other films in the series will deal with in-hospital medical professional liability problems and forensic pathology.

### Cumulative Index on Cancer

The National Cancer Institute has just issued a cumulative index of the *Journal of the National Cancer Institute* for the period 1940-1956. Included are a subject index, with comprehensive cross references, an author index, and a listing of current nomenclature for certain chemical compounds mentioned in the index. It gives a comprehensive view of a large segment of research in the field of cancer during the 16-year period.

Copies of the index have been sent to all libraries and individuals now receiving the *Journal*. Some free copies are available. Single copies may be requested from the National Cancer Institute, Attention: Information Officer, Bethesda 14, Maryland.



## Guide to Disability

The American Medical Association has announced publication of an important new document, a guide for physicians' use in medically rating persons under disability programs.

This guide to the evaluation of permanent impairment of the extremities and back is considered so important to physicians and administrators of many organizations vitally interested in disability that it has been published as a separate 117-page edition of the February 15 issue of the *Journal of the American Medical Association*.

Editor Austin Smith, M.D., said that it marks the first time that the *A.M.A. Journal* has ever devoted a special edition to a specific subject.

From a medical standpoint, the guide is important because evaluation or rating of permanent disability has long been recognized as a complex subject. In the past much confusion has resulted from inadequate understanding by physicians and others of: (1) The scope of medical responsibility in evaluation of permanent disability, and (2) The difference between "permanent disability" and "permanent impairment."

The preface of the guide states: "It is vitally important for every physician to be aware of his proper role in the evaluation of permanent disability under any private or public program for the disabled. It is equally important for him to have the necessary authoritative material to assist him in competently fulfilling his particular responsibility—the evaluation of permanent impairment."

The guide is the work of the Committee on Medical Rating of Physical Impairment, which was appointed by the A.M.A. Board of Trustees in September of 1956. This is actually the first of a series of guides which the A.M.A. committee hopes to develop with the assistance of outstanding consultants.

Members of the physical impairment committee are: Drs. Raymond M. McKeown, Coos Bay, Oregon, chairman and a member of the A.M.A. Board of Trustees; George F. Gsell, Wichita; Henry H. Kessler, Newark; Quentin W. Mack, Boise; James R. McVay, Kansas City, Missouri, and O. A. Sander, Milwaukee. Mr. George W. Cooley, Chicago, secretary, and Mrs. Marjorie W. Grigsby, Chicago, research associate.

The guide defines the following generally-used terms in programs for the disabled:

1. *Permanent Disability*. This is not a purely medical condition. A patient is "permanently disabled" or "under a permanent disability" when his actual or presumed ability to engage in gainful activity is reduced or absent because of "impairment" and no fundamental or marked change in the future can be expected.

2. *Permanent Impairment*. This is a purely medical

condition. Permanent impairment is any anatomic or functional abnormality or loss after maximal medical rehabilitation has been achieved and which abnormality or loss the physician considers stable or non-progressive at the time evaluation is made. It is always a basic consideration in evaluation of permanent disability. It should be remembered, however, that permanent impairment is a contributing factor to, but not necessarily an indication of, the extent of a patient's permanent disability.

3. *Evaluation (Rating) of Permanent Disability*. This is an administrative, not medical, responsibility and function. Evaluation of permanent disability is an appraisal of the patient's present and probable future ability to engage in gainful activity as it is affected by non-medical factors such as age, sex, education, economic and social environment, and the medical factor—permanent impairment. Non-medical factors have proved extremely difficult to measure. For this reason "permanent impairment" is in fact the sole or real criterion of "permanent disability" far more often than is readily acknowledged. Evaluation of permanent disability forms the basis for a determination of permanent disability which is an administrative decision as to the patient's entitlement.

4. *Evaluation (Rating) of Permanent Impairment*. This is a function which physicians alone are competent to perform. Evaluation of permanent impairment defines the scope of medical responsibility and therefore represents the physician's role in the evaluation of permanent disability. Evaluation of permanent impairment is an appraisal of the nature and extent of the patient's illness or injury as it affects his personal efficiency in the activities of daily living. These activities are self care, normal living postures, ambulation, elevation, traveling, and non-specialized hand activities. It is not and never can be the duty of physicians to evaluate the social and economic effects of permanent impairment. These effects must be evaluated by administrators in making determinations of permanent disability.

Competent evaluation of permanent impairment requires adequate and complete medical examination, accurate objective measurement of function, and avoidance of subjective impressions and non-medical factors such as the patient's age, sex, or employability.

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EXCELLENT OPPORTUNITY in group practice for a young general practitioner to replace retiring partner in growing Nebraska town of 15,000. Good salary to start, partnership as quickly as desired. Write the JOURNAL 9-58.

LABORATORY X-RAY TECHNICIAN wanted in Belleville. Work in hospital and in private office. Write the JOURNAL 6-58.

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## Acute Coronary Occlusion

### *Survival Study in Closed-Chest Dogs in Controls, with Hypothermia, and with "Lytic Cocktail"*

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The possible use of hypothermia during the acute stage of coronary occlusion as a means of decreasing the work of the heart is attractive. Selman and Brofman studied this approach in 10 dogs cooled to 25° 27° C.<sup>1</sup> Under these conditions, experimental ligation of the coronary artery was uniformly fatal. The mortality rate in their control dogs was 50 per cent, in their hypothermic dogs 100 per cent.

Another possible approach to the treatment of the acute stage of a coronary occlusion has been suggested by Lian.<sup>2</sup> In a paper entitled "Artificial Hibernation in Coronary Occlusion and Cardiovascular Surgery," Lian suggested "artificial hibernation" by use of the Laborit "lytic cocktail" for the treatment of acute myocardial infarction. For example, in management of acute experimental occlusion, Lian indicated that he had never seen paroxysmal ventricular tachycardia after coronary ligation under artificial hibernation.

#### Method

The reliability of induced coronary occlusion in dogs as an experimental method is debated. Mortality and morbidity have varied over a wide range. Slight differences in technique have resulted in inexplicable differences in survival. Our own attempt to obtain a "standard" canine coronary occlusion is as follows:

*First Stage.* All dogs were anesthetized with intravenous Demerol 10 mg. per kg.; Nembutal 10-15 mg.

per kg.; 100 per cent oxygen was administered by intratracheal intubation. A left thoracotomy was performed in the fourth interspace. The pericardium was opened and the anterior descending branch of the left coronary artery, immediately distal to the circumflex branch, was dissected and isolated. A No. 4 silk thread was placed beneath it and a loose tie was formed around it. The ends of the tie were brought through the chest wall at rib interspaces above and below the incision. The free ends of the

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**A two-stage operation resulting in an acute coronary occlusion in a closed-chest dog obtained the following results:**

Control group	
(21 dogs)	29% Survivors
Hypothermia to 30° C	
by Rectum (10 dogs)	0% Survivors
"Lytic cocktail"	
(10 dogs)	0% Survivors

In dogs using this experimental method, neither hypothermia to 30° C. nor the "lytic cocktail" has a beneficial influence upon dog survival. In fact, with this experimental technique, these procedures seem to be detrimental to the animal's survival.

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Aided by grants from the Kansas Heart Association.

tie were buried beneath the skin and fixed by sutures. In each case, care was given in placing the silk thread on the anterior descending coronary artery proximal to the large septal branch and distal to the circumflex branch. The chest was closed in a routine manner, the lungs re-expanded, and the dog was returned to the kennel. Penicillin was given. Electrocardiograms were made and serum glutamic oxalacetic transaminase studies were done before and daily after the thoracotomy. After a two-week period of convalescence, the dogs were divided into three groups for a second stage procedure.

*Second Stage.* Forty-one dogs were prepared as described in the first stage and then divided into three groups:

Group 1: (21 dogs) Chlorpromazine 50 mg., Demerol 100 mg. and Nembutal 120 to 180 mg. were used as anesthetic agents. Each dog was normothermic. The buried ends of the loose ligature were dissected free and the ends pulled until the ligature about the coronary artery was tightly closed. Electrocardiograms were taken before the procedure and continuously thereafter for 15 minutes. A serum transaminase sample and electrocardiogram were obtained every three hours for the first 24 hours, and every eight hours for the next 48 hours, and then daily for ten days.

Group 2: (10 dogs) With the same anesthesia as described for Group 1, but with the animal cooled to 30° C. (rectally), the coronary artery was ligated. This temperature was obtained by immersing the animal in running water. Transaminase and electrocardiogram studies were carried out as described for Group 1.

Group 3: (10 dogs) No premedication was given to dogs prior to the administration of the "lytic cocktail." The composition of the "lytic cocktail" consisted of 100 to 300 mg. of chlorpromazine, 100 to 150 of Phenergan and 100 to 150 mg. of Demerol mixed in 250 cc. of 5 per cent dextrose solution. It was administered intravenously for a period of about three hours. During this time 2 cc. of the following

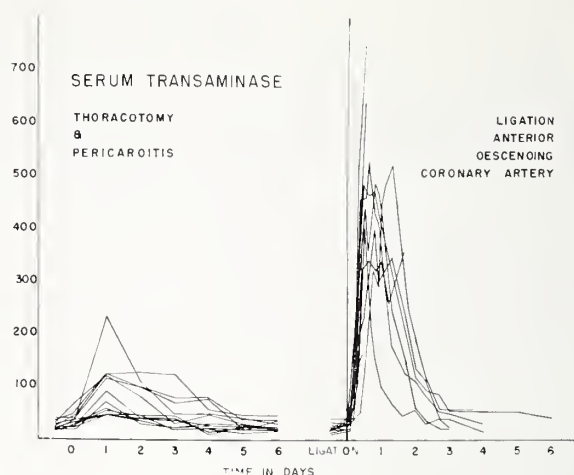


Figure 1

mixture was given every 15 minutes through the intravenous drip: 100 to 180 mg. chlorpromazine, 50 to 75 mg. of Phenergan and 50 to 75 mg. of Demerol in 12 cc. of saline. After the disappearance of muscular rigidity and relaxation of the animal, and as soon as the rectal temperature reached a level of 35 to 37, the coronary artery ligation was carried out. The doses varied from animal to animal. However, the average total dose was 29 mg. of chlorpromazine, 14.5 of Phenergan, and 14.5 of Demerol. The exact doses of "lytic cocktail" in these 10 dogs are shown in Table I at the bottom of this page.

## Results and Comments

*First Stage.* (41 dogs) As a by-product of the experiment, we noted the effect of thoracotomy and surgical pericarditis on the serum glutamic oxalacetic transaminase. This information is charted in Figure 1. Serum transaminase rises occurred in every case and lasted from one to four days. In six dogs, elevation was greater than 100 serum transaminase units, and in one animal a level of 235 SGOT units was found on the second postoperative day. The question

Dog No.	Dog Wt. (KG.)	Chlorpromazine		Phenergan		Demerol	
		TOTAL	— MG./KG.	TOTAL	— MG./KG.	TOTAL	— MG./KG.
1	8	400	50	200	25	200	25
2	8.5	400	47	200	23	200	23
3	12.0	330	27.5	140	11.6	140	11.6
4	10	300	30	150	15	150	15
5	12	200	15.8	100	8.3	100	8.3
6	12	280	23.3	140	11.6	140	11.6
7	11	300	27.1	150	13	150	13
8	13	250	19.2	150	11.2	150	11.2
9	10	300	30	150	15	125	12.5
10	11	250	22.5	125	11.3	125	11.3
Average			29.2		14.5		14.5

TABLE I

RESPONSE OF SERUM TRANSAMINASE TO LIGATION OF  
ANTERIOR DESCENDING CORONARY ARTERY

Dog No.	Base Reading	Rise Begins	P E A K		Return to Normal
			Onset	Time	
10	25	6 h	485	12-21 h	3d
12	10	3 h	645	12 h	
13	15	9 h	405	12 h	3d
16	40	6 h	365	12-36 h	
18	20	4 h	530	9-29 h	3d
20	15	6 h	750	12 h	
24	20	6 h	352	12 h	
25	50	6 h	137	9 h	
27	10	6 h	490	9-27 h	3d
29	20	6 h	400	15 h	3d
32	15	15 h	520	30 h	2d
33	20	6 h	370	9 h	

Figure 2

might be raised of whether our surgical dissection of the coronary artery did not destroy sufficient myocardial tissue to account for these elevations above the 100 SGOT units. This seems unlikely in view of the small amount of actual muscle dissection necessitated by our procedure. Another possible source of muscle necrosis might be in the clamping and retraction of the auricular appendage. We did not do a sham operation to eliminate this possibility.

*Second Stage.* Group 1: (21 dogs, normo-thermic but under moderate anesthesia) Six dogs survived the ligation. Eight dogs died immediately (within 10 minutes), and the remaining seven dogs died within a short period, ranging from 1 to 36 hours. The terminal event was always ventricular fibrillation. Elevation of the serum transaminase began from 3 to 15 hours after ligation and (the six survivors) persisted for a period of two or three days. The range of elevation varied from 365 to 750 units. The peak reading, on the average, occurred from 12 to 36 hours following the ligation.

Group 2: (10 dogs at 30° C.) There were no survivals in this hypothermic group. Seven dogs succumbed within five minutes and three dogs survived

7, 10, and 15 hours respectively after the acute occlusion. The serum transaminase levels in these dogs during their short survival rose to 200, 150, and 70 SGOT units, respectively.

Group 3: (10 dogs, with "lytic cocktail") All 10 dogs died in a few minutes except one which lived for 48 hours after the occlusion. Death was always due to ventricular fibrillation.

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The new era of material progress which means so much to all of us was not built on expediency. It was built on vision and incentive and moral stamina. It was built by a partnership in the development, in every corner and at every level, of the principle of man's humanity to man. We have prospered as a people because somewhere along the line we determined to be fair to each other.

—Maurice R. Franks



# Ureteral Obstruction

## *An Unusual Complication of Iliac Aneurysm*

H. J. KORNFELD, M.D., *Kansas City*, and M. E. JACOBSON, M.D., *Wichita*

Obstructive uropathy due to aneurysmal disease of the abdominal aorta and its branches would seem to be not an unusual occurrence because of the anatomical relationship of these structures; yet little mention of this phenomenon can be found in the American medical literature. The occurrence of two cases in a six-month period in a relatively small hospital (250 beds) has prompted the present report, particularly since the two cases illustrate both acute and chronic ureteral obstruction as well as reversal of uropathy in one case.

### Review of Literature

Urologic textbooks hardly mention this cause of obstructive uropathy. Lowsly and Kirwin's *Clinical Urology* states that extraureteral masses may produce mechanical pressure on the ureter, but it makes no mention of abdominal aneurysm acting as such a mass; and aortic aneurysm is not listed by them as a cause of hydronephrosis.

Braasch and Emmett's *Clinical Urography* states, "Vascular lesions such as calcification, occlusion, aneurysms, and A-V fistulas may encroach on or involve the urinary tract in exceptional cases. Such lesions, when of urographic or clinical importance, are distinctly rare." These authors include a photograph of an x-ray (No. 1308) showing displacement of the upper and mid-ureter by an aneurysm with proximal dilatation of the renal collecting system.

Frank Hinman, Jr., in Campbell's *Urology* states, "We have recently seen such a rare etiologic agent as an aneurysm of the abdominal aorta," in the course of discussing the causes of hydronephrosis. And Dodson's *Urological Surgery* makes no mention of this condition.

Shumacker and Barrett<sup>6</sup> reported a case of obstructive uropathy due to aneurysmal disease in 1955. Review of literature since then reveals no further articles specifically dealing with this subject, despite a voluminous amount of material on aneurysmal disease within this period.

### Anatomy

The ureter, a fibromuscular tube passing from the renal pelvis to the bladder, runs an oblique course in the retroperitoneal space, lying in intimate contact with the other retroperitoneal structures of importance. As it passes into the pelvis it crosses anterior to the common iliac artery, most usually just proximal to the bifurcation of that vessel. On the right, the ureter is separated from the (normal) aorta by the inferior vena cava, whereas on the left the two structures lie side by side. Narrowing of the ureter where it crosses the common iliac is considered physiologic.

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**Two patients with significant ureteral obstruction caused by aneurysm of the abdominal aorta are presented. This type of obstructive uropathy may develop acutely or chronically, and may cause symptoms which bring the patient to the physician. Attention is directed to aneurysmal disease as a cause of obstructive uropathy. The literature on the subject is briefly reviewed. Intravenous pyelograms showing the occurrence of acute obstruction in a three-day period are presented.**

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### Case 1

Case 1 illustrates chronic obstruction of both ureters by bilateral iliac aneurysm with uremia due to hydronephrosis. Despite ante mortem diagnosis, death ensued because of the advanced nature of uropathy.

A 62-year-old white male was admitted to Wichita Veterans Administration Hospital on July 16, 1957, on referral by a local physician with the diagnosis of "abdominal tumor." The patient had developed generalized edema in March, 1957, and was hospitalized and treated with digitalis and diuretics. The mass was apparently first discovered after subsidence of the edema in June. The patient complained of lethargy but otherwise felt well.

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From the Department of Surgery, University of Kansas Medical Center, Kansas City, Kansas, and the Veterans Administration Hospital, Wichita, Kansas.

Physical examination revealed an alert, well developed male appearing ill. Positive findings included a 6 x 8 inch pulsatile midline mass in the abdomen. Pertinent laboratory work on admission revealed a blood urea nitrogen of 93 mgm. per cent, creatinine 5.25 mgm. per cent, and hemoglobin 7.75 gm. per cent. Retrograde pyelograms were attempted but the right ureteral orifice could not be found, and a catheter was passed into the left ureter only with considerable difficulty. Marked hydronephrosis was revealed by the left retrograde pyelograms.

Surgery for resection of the aneurysm was considered but it was felt the patient could not tolerate the procedure because of his rapidly progressing uremia, as evidenced by a rising blood urea nitrogen. Consequently, on July 31, 1957, in an attempt to improve his renal status, a bilateral ureterostomy was performed. No function was present, however, on the right side. Despite careful supportive therapy the patient's condition steadily deteriorated as the blood urea nitrogen climbed to 223 mgm. per cent, and the patient expired on August 9, 1957.

Autopsy examination revealed the right kidney to weigh 150 Gms. and the left kidney to weigh 500 Gms. Cut section of the left kidney revealed numerous purulent abscesses with dilatation of the collecting system. The ureter was dilated with obstruction of the lumen at the point where it crossed the lower portion of the aneurysm. The right kidney showed advanced hydronephrosis with only a thin rim of renal substance remaining. The right ureter also showed obstruction of its lumen where it crossed over the surface of the aortic aneurysm. The aorta showed an

aneurysm above the bifurcation which extended into both internal and external iliac arteries.

## Case 2

Case 2 illustrates acute ureteral block with the clinical picture of acute pyelonephritis. This acute blockage is substantiated by intravenous pyelograms taken three days apart. This case also demonstrates the effect of proper management of this condition.

The patient, a 67-year-old white male, retired farmer, was admitted to Wichita Veterans Administration Hospital on December 16, 1957, with the chief complaint of abdominal pain. The symptom had been present for three weeks prior to admission. This pain varied from sharp to dull in character, was located in the lower abdomen with emphasis on the right side, and occasionally was associated with stabbing radiation into the right groin. It was completely unrelated to the gastrointestinal tract by symptomatology. There were no urinary difficulties or symptoms.

During a previous admission in September, 1957, a transurethral resection for benign prostatic hypertrophy was accomplished without incident, and the post-operative course was uneventful. Past history and system review were otherwise non-contributory.

Positive physical findings were limited to the abdomen where a 4 cm. pulsatile mass was felt in the right lower quadrant. It was somewhat tender to palpation. Femoral and pedal pulses were within normal limits bilaterally. Blood pressure was 150/100.

Initial laboratory studies revealed a hemoglobin of 12.6 Gms. and a white blood count of 8,750 with 65

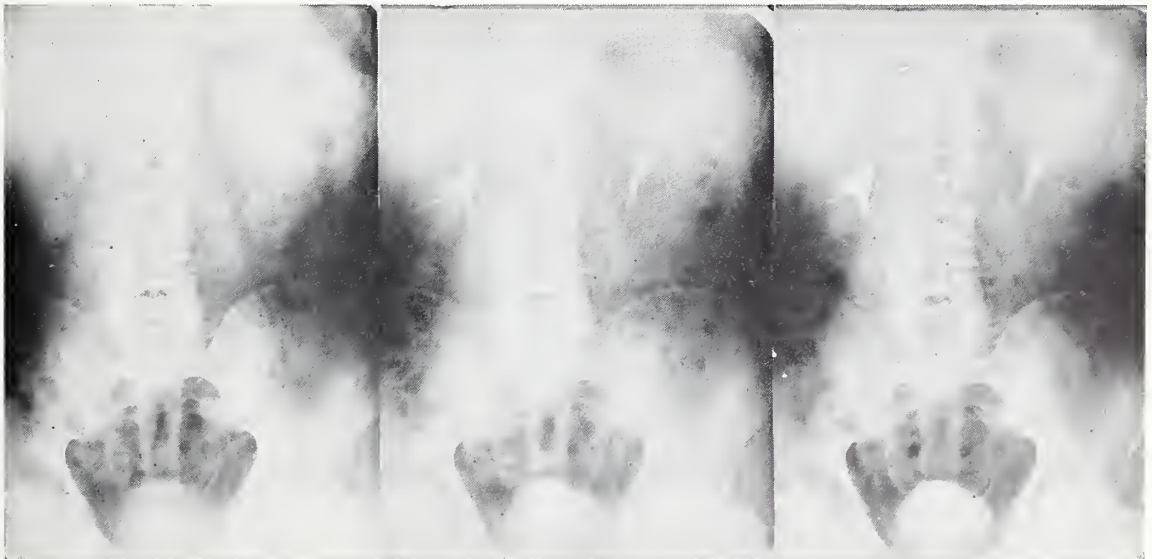


Figure 1. Intravenous pyelograms taken on December 17, 1957. At left, 5-minute film; center, 15-minute film; right, 30-minute film.

per cent neutrophils. Urinalysis was negative except for many white blood cells per high power field in the sediment (a usual finding this soon following a trans-urethral resection). The blood urea nitrogen was 16 mgm. per cent.

Intravenous pyelograms on December 17, 1957, revealed prompt bilateral filling and essentially an identical view to pyelograms obtained approximately two months previously (Figure 1). While in retrospect one might say that the right ureter was displaced to a minor degree, this finding was not thus interpreted by the radiologist or urologist when read.

On December 18, 1957, this patient developed chills and fever with temperature elevation to 101.8. No instrumentation had been done. The white blood count remained normal and the chest film was unchanged from a previous film. There were no subjective urinary tract findings with this illness and there was no suprapubic tenderness or costovertebral angle tenderness. Despite vigorous antibacterial treatment the temperature elevation and chills continued. On December 20, 1957, immediately prior to a proposed aortic resection and graft, an intravenous pyelogram was obtained. This series of films (Figure 2) revealed delayed filling in the right upper tract with obvious hydronephrosis in the 30-minute film.

Following these x-rays a No. 7 ureteral catheter was inserted into the right kidney pelvis. Some obstruction was felt as the catheter was passed along the proximal ureter with difficulty. When it reached the upper urinary tract there was an immediate egress of urine under obvious increased pressure. Examination of this urine revealed many clumps of pus cells and

active bacteria. Culture revealed the presence of *E. coli*.

With the ureteral catheter in place the patient was taken to the operating room and a dumbbell shaped aortic aneurysm involving the right common iliac artery and aorta was resected with insertion of an Edward's-Tapp type bifurcation graft. The right ureter was extensively adherent to the lateral wall of the aneurysm, and the presence of the ureteral catheter greatly enhanced the dissection necessary to separate the structures. It was necessary to sacrifice both internal iliac arteries due to tubular aneurysmal dilatation of these vessels. Postoperatively the patient has done well and has complete control of urinary continence. The ureteral catheter was left in place for five days postoperatively and was then removed. Examination of urine obtained from the ureteral catheter of the fourth postoperative day revealed a normal sediment.

### Comment

The above cases clearly illustrate the ureteral involvement that may occur with arteriosclerotic aortic aneurysm. The involvement may be slow and inexorable, with slowly progressive hydronephrosis and uremia, as demonstrated by the first case, or the obstruction may occur over a short period with acute infection. Treatment of both types is basically the same, correction of the aneurysmal defect with consequent relief of ureteral obstruction. This could not be done in the first patient because of the advanced state of renal damage when he was first seen, and "conservative" management (i.e., drainage by proximal ureterostomy) was not sufficient to save renal function and hence life.



Figure 2. Intravenous pyelograms taken on December 20, 1957. At left, 5-minute film; center, 15-minute film; right, 30-minute film.



With the intimate relationship of the ureter and iliac arteries it is perhaps surprising that aneurysms do not more often cause ureteral obstruction. The literature supports the view that this relationship is uncommon. If one considers, however, that the ureter is fixed at its two ends but is only loosely bound down in its course between its origin and termination, then one can realize how the ureter may be gently pushed aside by an enlarging tumor. When, however, the ureter becomes fixed in position, further enlargement can result in extraneous pressure, obliteration of the lumen, and hydronephrosis.

The initial diagnosis will usually depend on the acuity of the general practitioner, the internist, and the urologist. Since this is a potentially curable condition, it is important for all physicians to be aware of this entity and to add it to their differential diagnosis in renal and abdominal disease.

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# Psychiatric Hospitalization

## Indications and Contraindications

PAUL E. FELDMAN, M.D., *Topeka, Moderator*

Dr. Feldman:

A large number of reports from visitors from England and the Scandinavian countries over the past five years have drawn the attention of psychiatrists and psychiatric hospital superintendents to a general difference between mental hospitals in those countries and our own. There is a trend abroad, which has assumed the proportions of a movement, toward an open-door policy and toward the creation of a therapeutic community. The concept of the therapeutic community differs in different hospitals. In some it suggests that the hospital itself should be a therapeutic community; in others, it implies the establishment of a therapeutic atmosphere in a larger community of which the hospital is only one part.

One of the results of these accounts is that they have stimulated a great many of us to re-examine our experience in the hospital treatment of the mentally ill and to consider with renewed professional skepticism just what it is that we are trying to do, both for the public and for our patients.

Such study and reflection soon provide ample evidence and conviction that removal of the patient from his home and surroundings to a hospital bed—while it may often relieve the community of immediate

pressures, and while it may bring various useful treatment routines to bear upon the patient's illness—is by no means an unmixed blessing. For one thing, it may cause the community to postpone indefinitely the development of other more effective treatment

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facilities and, for another, it may add additional complexities to the patient's own treatment problem.

The end point of any psychiatric treatment program is resocialization of the patient and his reintegration with family, with friends, and with industry. Such resocialization comprehends the idea that a released patient's economic and cultural needs will be met, that he will be useful so far as he is physically able, and that his sense of personal worth and dignity will be sustained. Wherever hospitalization tends to impede his progress toward these goals or, indeed, to move

the patient farther from them, it should be recognized as harmful.

We, then, are concerned with this question: Under what circumstances do the advantages of hospitalization of the mentally ill outweigh its disadvantages? The panel which has been assembled here represents a variety of institutions, agencies, and types of medical practice whose goals and methods must be consistent and coordinated if we are to accomplish our public and professional charge.

First, I would like to call upon Dr. Simpson, clinical director of the Topeka State Hospital. I would like to ask him to comment upon the adverse effects of hospitalization of the mentally ill.

## Adverse Effects of Hospitalization

**WILLIAM S. SIMPSON, M.D., Topeka**

In the moderator's foreword he says, "The end point of any psychiatric treatment program is re-socialization of the patient and his re-integration with family, with friends, and with industry." Here we shall consider how prolonged hospitalization may adversely affect the patient in his progress toward these goals.

By the time a psychiatric patient is admitted to a hospital, he has often alienated himself from his relatives and the community by his symptoms and behavior. Rarely does he come into the hospital early in his illness; the relatives and the community generally wait until he becomes an emergency patient. Because of the hostility which a patient often provokes in those near to him, hospitalization is often conceived of by relatives or society, not so much as a way in which help may be obtained for the patient, but rather as a way in which he may be ejected from society—"put away"—with the accompanying feeling of "I have had enough of him, you take care of him." This feeling on the part of relatives is in marked contrast with that which usually accompanies the physically ill patient to a general hospital.

With the usual physical illness, a patient's place in society is held open more or less indefinitely. With the mentally ill, however, the ranks of society tend to close rather rapidly with hospitalization. Reasons for this are the lack of expectation of improvement or cure because of society's previous experience with psychiatric hospitalization, and the fact that psychiatric hospitalization usually requires more time to be effective than general hospitalization. (The "average" five- to ten-day stay in a general hospital would compare with the "average" stay of three to six months in a public psychiatric hospital.) In addition, another factor as mentioned above is the hostile atmosphere created by his behavior and symptoms prior to hos-

pitalization. Thus a patient may enter the hospital at a disadvantage. Those close to the patient have often found him such a burden that secretly they hope that he does not return, and, furthermore, they do not expect that much can be done to help him, anyway.

Naturally, once the patient enters the hospital, we on the staff wish to make the hospitalization as effective as possible in rehabilitating him. However, we immediately run into a problem. We want the patient to like our hospital, but we do not want him to like it *too* much. We do not want him to develop "hospitalitis" and become too dependent on the hospital.

Psychiatric hospital personnel constantly have to struggle against the tendency of long-term hospitalization to degrade, desocialize, and deacculturize patients. It is a human tendency to conserve energy, to do things the simplest way, to routinize, and to plan for the mass instead of the individual. There is a constant temptation to create policies which make the hospital run more smoothly and quietly, but which deaden the patient's initiative, crush him, and take responsibility away from him. There is the temptation to reduce the running of a ward to its lowest and simplest level and to have the ward run in accordance with the mental status of its most disordered patient.

In such a milieu a patient may first resent and fight the restrictiveness, but after a time he may give up and become indifferent. This acceptance, though convenient from the standpoint of running the hospital, sometimes is inimical to the patient's progress towards his eventual return to effective community life. The very qualities that are needed so badly to survive in our society—a sense of responsibility, initiative, acquisitiveness, a sense of anger at social wrong—are all stifled by the very hospital which is supposed to help the patient return to society. If hospitalization is too prolonged, an almost irreversible state of dependency is fostered which makes eventual movement outward almost impossible.

Beyond this desocialization lies deacculturation. By this is meant such a loss of contact with not only the community but also the culture in which the patient lives, that in order for him to survive, he must stay in the hospital.

Thus, hospitalization may adversely affect the process of recovery. The hospitalized patient may face a triple problem, not only of recovering from his illness, and of returning to a society which has rejected him, but also of overcoming the adverse effects of hospitalization noted above.

Dr. Feldman:

Thank you, Dr. Simpson. Next I would like to call upon Mrs. Zurbucken as administrative director of Family Service and Guidance Center of Topeka. I would like her to comment specifically upon (1)

What she feels to be some of the community resources, the presence or absence of which contribute to the success or failure of maintaining a mentally ill patient in the community during his treatment, and (2) Whether or not these resources are the same or different from those which contribute to the success or failure of resocializing a patient once he has been hospitalized.

## Community Resources

### MRS. KATHLEEN ZURBUCKEN, *Topeka*

As a social worker, as well as representative of Family Service of Topeka, I should like to clarify the function of social work in helping emotionally disturbed patients—prior to treatment, while they are being treated, or after a period of hospitalization.

Social workers are interested in environmental situations and the reality stresses which are placed on people. It is part of the responsibility of the social worker to help alleviate known pressures and to help the patient understand, adjust, and accept the problems which must remain because of our cultural standards.

It seems to me that there are four specific areas which affect a mentally ill patient in the community both during and after any type of prescribed treatment. These areas are: (1) his home; (2) his employment; (3) his recreation, and (4) interpersonal relationship with those around him.

Let's consider each of these areas individually.

*His Home:* While an individual is having treatment, or just moving back into the community from either a long or a short period of hospitalization, it is his home to which he looks for support while he is making an adjustment back into his more normal activities. Many times a physician is helping this patient with his problems, but a social agency should be working with the family and the physician to help the family understand and accept the patient's limitations. The goal should be family understanding, even though this might mean some environmental changes. Often substitute homes are needed. This places much more pressure upon the patient as well as upon the substitute family members. The social agency should be constantly working with these substitute homes.

Topeka, as a community, does not have many homes where only one or two persons may live. Homes caring for small numbers of patients should be developed since there seems to me to be a real danger in setting up small institutions all over the community to care for people who either have no family or whose families are not able to accept them back into their own homes.

There is one type of service badly needed in the Topeka area to help in re-socializing the aged person. This is a day care center for the aged—where an older person could spend eight hours a day, where focus could be placed upon stimulating his interest, and where he could be encouraged to have "some life of his own." This would give adult children of older people some relief and would make the older person more capable of fitting into the adult child's home.

*His Employment:* Unfortunately many employers in our society believe that an individual who has had to be hospitalized or has had psychiatric treatment because of some emotional disturbance will never again be capable of fulfilling a job requirement. This leaves the individual in treatment feeling that he is no longer able to earn a living and takes away one of our most important sociological functions. Since Topeka, and the vicinity around the community, is primarily rural, we have a rather poor labor market. The community has never sponsored a shelter workshop to help retrain persons, but it would be most helpful if this type of thing could be established, and it would eventually pay its own expenses in terms of people becoming economically independent.

Another lack in our services is that the vocational rehabilitation agency is able to assist only the physically handicapped and not the emotionally handicapped. Until this service can include the emotionally handicapped, there are many people with potential capacities who cannot be retrained.

*His Recreation:* Persons who have been ill must learn to enjoy themselves. The community offers a good outlet for the older person in four Senior Citizens Clubs sponsored by the City Recreation Department. A great help would be the establishment of a social club for patients since individuals who have had treatment seem to receive support from those who have had like experiences.

Family Service would like to sponsor something of this sort, but again it would take proper financing, and the community to date has not seemed to deem it necessary.

*Interpersonal Relationships:* Interpersonal relationships are most important in helping the individual who has been upset to recreate an adequate and satisfying group experience. In order to meet these needs the social worker helps develop interest in civic and church groups, and Family Service also allows a place where a frightened person can come and sit and read a magazine. This may seem a simple type of outlet, but it is most important for those persons who need to find some place where they are acceptable enough where they can sit and enjoy themselves.

We have been focusing in this discussion on a former hospital patient, but all persons in the community need most of the resources we have discussed. The



person who has been emotionally upset needs just a little more help and understanding to be able to use these resources.

I would like to add that we all need to remember that persons coming out of the hospital have a right for more than survival, that they should have the right to rehabilitation, and the community has a responsibility to provide this.

These resources should be readily available, and there needs to be close co-ordination between physicians and community agencies.

Family Service is available to attempt to mobilize resources in the community for any patient.

Dr. Feldman:

Thank you, Mrs. Zurbucken. Next, I would like to call upon Dr. Grimshaw and ask him, as a psychiatrist in the private practice of psychiatry, to answer these questions. At what point does it become necessary for you to consider hospitalization of patients seen in private practice? Which of your problems can be dealt with in a general hospital? And, finally, do you feel there is need for additional facilities for such patients in general hospitals?

## Local Hospitals and Private Practice

JOHN A. GRIMSHAW, M.D., *Topeka*

The simplest way to approach this question is to think in terms of most of the usual indications for hospital admission in psychiatric practice and then to consider what type of hospitalization and what requirements the hospital must meet to best accommodate these indications.

There are certain indications for hospitalization which I would call absolute. By this I mean that there can be no compromise. The patient is unquestionably in need of attention under a special setting, and out-patient therapy is contraindicated.

Danger to oneself or others usually requires seclusion and/or close 24-hour watch of the patient plus strict medical attention. The drugs and physical measures which are necessary to control such a patient must often be used in quantities necessitating very close supervision. The local hospital could accept such patients only on a strictly emergency basis and for a very short period of time. Definitive treatment in the general hospital is out of the question if the situation requires more than a few days of therapy. In planning general hospitals for the future, there should be facilities such as seclusion rooms where a patient could be maintained with minimal risk to himself and minimal disturbance to others for short periods. There are many conditions that would respond promptly, and this would reduce the necessity of state hospitalization.

Severely disturbed, maniacal, noisy patients also constitute a medical emergency. These patients need close attention to sedation, nutrition, fluid balance, and isolation from other patients who would be disturbed by them. It is felt that the amount of time consumed by the nursing staff and by physicians, and the type of isolation that would be necessary, would render treatment of such patients in a local hospital impractical. These patients need the specialized setting that can be found only in a mental hospital such as our state hospital.

Other than these two absolute indications, we have other less pressing needs. The first of these might be situations in which special treatment is necessary that is not possible on an out-patient basis. This might require occupational activities or activities of a social nature, recreational therapy, work programs, or special medical treatments such as insulin, lobotomy, repeated electro-shock treatments, etc., or it might merely be necessary to control acting out, as with asocial behavior problems.

At times the hospital is necessary in order to remove the patient from an unhealthful environment or to control serious and incapacitating anxiety. At present hospitalization in a general hospital for reasons such as these is impractical because none of the requirements can be met. There are no special materials or personnel to give any kind of a therapeutically orientated regime and program of daily activities to treat the patient. Special teams of personnel are necessary here. Nurses and aides dealing with these patients need special training, none of which are available at present.

There is no reason to assume, however, that the local hospital could not in the future provide such services by having a psychiatric department with its own beds and which could supply on a modest scale the special technicians, aides, and nurses which would be necessary for the institution of a therapeutic milieu. The attending psychiatrists on the service would have as one of their important functions the continued training and instruction of such personnel, and activities for the patient could be prescribed in much the same manner as is now done in private or state mental hospitals.

At times hospitalization is necessary because it supplies methods of study not available on an out-patient basis. For example, patients might be in a period of observation and "work-up" which would require numerous consultations, laboratory and other facilities, and the trained observations of aides and nurses over long periods of time. All of these could adequately be made available in the local hospital but are not available now. In planning a psychiatric department for the local hospital, we would be expected to have consulting psychologists, social workers, and

other specialists available to its staff who would be adequate to study the patient to the point where definitive recommendations could be made even in difficult cases. It is of course questionable whether certain rarely used or elaborate pieces of laboratory equipment should be supplied by the local hospital, but these could easily be supplied on a consultant basis or on a referral basis through the state hospital system or private mental hospitals.

There are many indications for hospitalization in private practice which at present can be taken care of only in private mental hospitals or in the state hospitals. The majority of such patients must go to the state mental hospitals because of the financial burden private hospitalization imposes. I see no reason, however, why facilities on a moderate scale could not be supplied by the local hospital in the future, which would provide an adequate therapeutic milieu to take care of a large majority of these patients who now are adding to the burden of our crowded state hospitals.

Dr. Feldman:

Thank you, Dr. Grimshaw. Dr. Forman, would you please comment upon what distinguishes the type of service offered by the Shawnee Guidance Center from other out-patient clinic systems in Topeka?

## **The Shawnee Guidance Center**

**R. B. FORMAN, M.D., Topeka**

The Shawnee Guidance Center's somewhat different relationship to the community (different from the other clinics and hospitals represented here) stems from the fact that our clinic is run and financed for and by members of Shawnee County. For this reason the clinic orients its services to the county and to other agencies within the county. Together we work with these agencies for the mental hygiene of our community.

This orientation was prescribed when the community established this clinic. We provide psychiatric services to residents of the county who cannot afford private care and psychiatric services to other county agencies. This requires a large consultation service. We spend a good deal of time working with the Juvenile Court, the Police Court, the schools, holding conferences with principals, teachers, and members of the special education department, providing services to the social work agencies in town (when they need the special medical skills which a psychiatric clinic can provide), attempting to use our specialized knowledge in various community planning ventures. Recently a representative of our clinic sat with a study group which considered the problem of juvenile delinquency. We find ourselves meeting frequently with representatives of the health department and the

county welfare agency in attempts to make reasonable plans for the problem families that every community has.

Obviously we do not work alone. We appeal to these agencies to assist us in providing help for members of the community who consult us. The Juvenile Court judge is often an extremely useful member of our treatment team, especially in handling the knotty problems that juvenile delinquents present to us. The county welfare agency works with us in finding suitable homes for children and aged people, where it is clearly indicated that they be moved out of their present noxious environment and do not need hospitalization.

Because of our interest in the preventive aspects of psychiatry, we participate in as many community teaching ventures as we can. More important, we attempt to expand our diagnostic and treatment services to children; for here, by providing a corrective experience for a young child, or helping a young family straighten out some emotional difficulty, we feel we can apply preventive psychiatric services most directly.

In the past year we have tripled our services to children, and we endeavor continually to cut down the period of time an anxious parent or disturbed child must wait before he can be seen.

Because of our eligibility requirements—residence in Shawnee County and an income which will not allow private treatment—we find that we are the major psychiatric resource for the large military community in Topeka. Last year we spent over 1/7 of our total time on problems presented to us by members of the armed forces and their families who live in the county.

Formal psychotherapy is provided to a large number of adults as well, with the aim of maintaining the productivity and usefulness of our neighbors.

We represent, in a very real way, the community's effort to help itself maintain a high level of mental good health.

Dr. Feldman:

Thank you, Dr. Forman. Dr. Thompson, would you comment upon the general question concerning the special advantages, if any, and limitations, if any, in treatment which can be provided by the Menninger Foundation Out-Patient Clinic as distinguished from the other out-patient clinics in Topeka?

## **Menninger Foundation Out-Patient Clinic**

**PRESCOTT W. THOMPSON, M.D., Topeka**

I should like to speak first about the question of stigma, or of doors being closed to a man because of previous psychiatric hospitalization. There is stigma, or an emotional reaction of some sort, on the part of



some of our community, but I am inclined to focus on another aspect of the problem. As a psychiatrist, I don't recall a single case conference in which the question of how much stigma might result from the patient's hospitalization entered importantly into our deliberations. Perhaps this is because we look upon other considerations as being much more important.

We psychiatrists are concerned with how a patient is stigmatizing or spoiling things for himself in the eyes of the community. He may not be aware of it, and pointing this up or otherwise helping him to control such behavior may be one of our major jobs in his out-patient treatment.

When a patient leaves the hospital, he will usually be able to find work if he wants it, if he is ready for it, and if he is able to control his behavior. On the other hand, if he is still ill, whether the illness expresses itself through arrogance or suspiciousness, through provocativeness or hallucinations, or through excessive drinking, he may create wariness or outright rejection in others. If the patient is the vocal immature type, he may then blame his failure on the prejudices of society. Of course society has its prejudices, but I think we must be careful not to let this bit of social pathology interfere with our assessment of the patient and the treatment he needs.

I am reminded of a rather extreme example of a family which was concerned about stigma, and at the same time peculiarly blind to evidences of illness in the daughter. For months the girl clamored louder and louder that she needed help. She had fainted in the bathroom, impulsively walked out of social situations where she was the hostess, had wandered about in a daze and couldn't recall where she had been, had become lost on a familiar road, and so on. Finally, she fired off a revolver, indoors. Still no one heard what she was saying.

Then she murdered her husband.

Since then she has been hospitalized for treatment of her illness, and she has served a prison sentence. Obviously, she was stigmatized and scarred far more than if she had been admitted earlier to the hospital. (Interestingly enough, however, she now holds a responsible job.)

What would have happened if her parents had brought her to a psychiatrist six months before the murder? In the first place, this would have meant that she had parents who were alert to her distress and were concerned about it. This in itself would have been a good start. We would have listened carefully to the parents, done psychological tests, arranged for an electroencephalogram, and neurological consultation, and so on, and one of us would have spent several hours with the patient.

At first, the girl's facade—which was a sweet friendly one—might have led us to believe that she

was not too disturbed. There may have been no particular indications at that time of murderous tendencies. But I think we would have been impressed with the insidious development of her illness, her flat affect, her tendency to act impulsively, and the various evidences of stress and strain in her thinking, perception, behavior, and physiology. At that point, we might have had several choices other than hospitalization, but the question of stigma would not have entered into our recommendation. We would have been concerned primarily with what direction her illness could be expected to take, how much support or control she needed, how much stress she could handle, and so on. We are inclined to hospitalize early rather than late, looking upon retreat as strategic when there is serious risk that continuing the battle may be catastrophic, as it was with this girl.

Speaking on a slightly different point, as requested by the chairman, we are aware in our (Menninger) clinic of the reluctance of some patients to see a psychiatrist, and how much effort it sometimes takes by the physician or friends to bring about the consultation or examination. I think that this reluctance has less to do with what the neighbors might say, and more to do with the patient's usually ungrounded fear of how he might feel about himself if he takes a good look. We arrange our schedules so that we can see such a patient promptly because delay often weakens his resolve to do something about his problem.

We are then prepared to go on from there with the patient and family, or to refer them back to the doctor with an opinion and recommendations, or on to another clinic or hospital. We thus offer a flexible service designed to provide as much or as little help as is indicated. Since many of the patients whom we see are necessarily referred elsewhere, we are grateful that we are part of a psychiatric community as rich in resources as is Topeka, and that important progress has been made and still is being made elsewhere in Kansas. When we refer a patient to a state hospital, or to any other psychiatric in-patient facility, it is comforting to be able to say with conviction that the patient is being referred to a *hospital*. And when we refer with conviction, the patient usually goes.

Dr. Feldman:

Thank you, Dr. Thompson. Dr. Stage, as a representative of a veterans' hospital, would you please comment upon what distinguishes the type of service of the Veterans Administration?

## VA Psychiatric Facilities

THOMAS B. STAGE, M.D., *Topeka*

Veterans Administration medical facilities were established for the care of veterans with service-con-



nected illnesses. These are veterans who developed illnesses as a result of their service in the armed forces. In Topeka we can care for veterans who have service-connected emotional illness either on an out-patient or in-patient basis. Out-patients are treated at the VA Mental Hygiene Clinic and in-patients at Winter Veterans Administration Hospital. Both open and closed ward, male and female psychiatric services, as well as medical, surgical, and neurological services, are available at Winter Hospital.

Whenever possible, veterans are treated on an out-patient basis. They can continue with their jobs and their families and the difficult period of post-hospital adjustment is avoided. Since only veterans with service-connected illness can be treated at the Veterans Administration Mental Hygiene Clinic, the patient load of that clinic is primarily one of long-term treatment cases.

If beds are available over and above those needed for treatment of service-connected illnesses, other veterans may be admitted to Veterans Administration hospitals. During the past few years there has been a steady influx of closed ward patients with service-connected illness to Winter Hospital. We have not had closed ward beds available for other veterans. However, in other sections of the hospital, where there is a faster turnover of patients, beds are frequently available for all veterans. Veterans with service-connected illness are given priority, and waiting lists are established if beds are not immediately available for other veterans.

Any veteran can be examined at our admissions office. If we determine that he needs psychiatric treatment, and he is not eligible for treatment through the Veterans Administration, our admissions social worker will help the veteran and his family find a treatment source. Referrals may be made to the family physician, private psychiatrist, social agency, or to a private or state psychiatric hospital.

If a more complete psychiatric evaluation is required, and the veteran's condition is such that he can tolerate an open psychiatric ward, he can be admitted to the Diagnostic and Appraisal Section. The waiting period for this section is usually four to six weeks for those whose illness is not service-connected. The veteran is informed that the psychiatric evaluation will usually take two weeks. During this two weeks he will be interviewed on several occasions by a psychiatrist. Psychological tests will be administered if the psychiatrist thinks that they will be helpful. Family members will be interviewed by the psychiatric social worker if they can come to the hospital. Consultations are held with the medical, neurological, and surgical staff if necessary. Special examinations such as electroencephalograms and pneumoencephalo-

grams can be done if the clinical picture is a complicated one.

At the end of the evaluation the patient and physician discuss further treatment. Most of these patients leave the hospital at the end of the evaluation period. If they are in need of treatment, they may be referred to their family physician or to public or private psychiatric out-patient facilities. Some patients are unable to leave the hospital at the end of their evaluation period and are treated on the open psychiatric section of the hospital.

Winter Hospital also has an alcoholic rehabilitation program. This is strictly a voluntary program, and each veteran must agree to spend 90 days on the closed alcoholic rehabilitation ward. Group therapy, milieu therapy, antabuse, and tranquilizers may be used in the treatment of the individual patient. Since alcoholism is so prevalent, there is a great demand for this program and the waiting list is consequently long.

Our philosophy is to treat psychiatric patients on an out-patient basis if at all possible. Hospitalization is kept as short as possible so as to avoid disruption of family life and employment. Veterans with illness that is not service connected, who are evaluated on our diagnostic and appraisal service or treated in the alcoholic unit, must be returned to their home communities for follow-up and treatment. It is necessary for the community to offer facilities for the treatment of these citizens.

Dr. Feldman:

Thank you, Dr. Stage. Dr. Williams, as a representative of an out-patient service of a state hospital, would you please comment upon any advantages or disadvantages which you feel obtain from having the patient live at home during therapy?

## **Advantages and Disadvantages of Hospitalization**

**HOWARD V. WILLIAMS, M.D., Topeka**

In the introduction to our discussion for the evening, we could begin to appreciate the trend away from the isolation and confinement of the psychiatric patient toward the bringing of the patient into the community. New institutions and new techniques and new medications are adding more and more steps to serve the patient's attempts not to withdraw from active participation in the outside world. The large psychiatric hospitals can more and more cooperate with a number of outlying institutions such as the day hospital, the night hospital, the day nursery, the community recreational center, the church, the schools, as well as the out-patient clinics to accomplish the goals outlined to us.

Even though I make something of a contrast between the out-patient clinic and the hospital, it is, nevertheless, within the framework that each could be selected for very specific purposes at different times in the treatment of the same patient, or either could be selected for the treatment of the same symptom in two different patients.

In contrast to the out-patient clinic, the hospital provides for the patient a great number of material things. Food, clothing, and shelter are obvious examples that are given to the patient whether the patient makes an effort to earn them, to pay for them from previous earnings, or have them paid for by the family, the community, or the state. In contrast to the out-patient clinic, the hospital provides sufficient safeguards and sufficient trained technicians to allow the use of treatment modalities like insulin coma treatments or massive dosages of the ataractics. In contrast to the out-patient clinic, the hospital provides personnel trained to supervise and observe the patient around the clock.

In contrast to the out-patient clinic, the psychiatric hospital has more control of the attitudes of people the patient meets, and can, in many instances, actually make a medical prescription of the attitude that the patient should meet throughout the whole day. For advantages such as these, the out-patient cannot really hope to substitute, but not all patients need to be cared for so completely and even react unfavorably to being completely dependent upon the hospital for all needs, since the hospital cannot be so all-giving without, at the same time, putting some restrictions on the patient. In some instances, at least, this complete care means close confinement and loss of rights and of independence as most of us possess.

Therefore, in the examinations that we do in the Topeka State Hospital Out-Patient Clinic, we make an attempt to balance the advantages and disadvan-

tages of hospitalization versus out-patient treatment. We try to find the correct niche for the patient to carry out the treatment program, and in doing so, try to consider seven aspects of the patient's functioning in his everyday life.

For selection for out-patient treatment, the staff wants to know, first, if he is aware of being ill, and, second, if he is sufficiently eager for treatment to co-operate with his program. If these favorable conditions seem likely, we try to see what special supervision the patient will need, or how much the patient will have to be under observation. If the patient meets this third requirement sufficiently well, he might also pass the fourth consideration, which is that he does not constitute a danger to himself or other people.

After these major considerations, we search for ways that the patient may continue activities in his usual environment on a reduced basis in order to plan his visits to the clinic itself. This is often possible if the patient meets the sixth condition, which is that his behavior remains within normal limits, or what queerness there is remains concealed by his own isolation, discretion, or at times the nature of the environmental situation.

Lastly, if the patient can take some distance from himself and examine with the psychiatrist his own thoughts and feelings, we generally conclude we should attempt treatment on an out-patient basis.

Special conditions in the environment of the patient might still lead to hospitalization, but these are the main characteristics we do hope the patient can bring to his treatment.

Dr. Feldman:

Thank you, Dr. Williams. I believe that our speakers tonight have clearly demonstrated that our community needs additional resources if we are to move toward the kind of community-centered program of treatment which will be most effective for our patients.

When we try to serve the world (or to understand it) we touch what is divine. We get our dignity, our courage, our joy in work because of the greatness of the far-off and always in sight, always attainable, never at any moment attained. Service is one of the ways by which a tiny insect like one of us can get a purchase on the whole universe. If we find the job where we can be of use, we are hitched to the star of the world and move with it.

—Richard Cabot



"The pioneer physiologist of the United States and the first to make a contribution of enduring value, his work remains a model of patient, persevering research." So does Sir William Osler describe Dr. William Beaumont. Many details are well known of the injury of Alexis St. Martin by a close-range shotgun blast; his treatment by Dr. Beaumont through a long convalescence; unexpected recovery; and the development of a gastric fistula, which made possible a series of epochal experiments in gastric physiology.

After two years of treatment combined with astute observations, "Beaumont sent a complete report of Alexis' case to Surgeon-General Lovell for his approval and correction, with the suggestion that it be published in some reputable medical journal, and in response to this communication received the following reply from the surgeon-general. . . .

"I have received your letter enclosing your valuable communication of the case of wounded stomach. The cure is a full demonstration of the wonderful powers of nature and highly creditable to yourself. Agreeably to your suggestion, I shall send it to the *Medical Recorder* for publication, altering it only so far as may be necessary to introduce a part of your letter relative to the present state of your patient.

"I will endeavor to send you some book of experiments on the gastric liquor, which will be somewhat of a guide to you in making your observations, which may be done with perfect ease and safety. It is stated, for example, that if several articles of food be taken into the stomach, that it would digest all of *one kind* first, then all of a second, and so on, and that this is the cause of the bad effects of a variety of food at the same meal. Suppose a man eat beef, potatoes,

fish, cabbage, and pudding, it is expected that he will first digest all the beef, the others in the meantime remaining untouched; then all the pudding, then all the potatoes, and lastly the cabbage. Now, it is thought if he eat a dozen articles, by the time the stomach has disposed of eight or ten, it will become exhausted, and the rest will be left to ferment and produce indigestion and its consequent evils. Could you make experiments to ascertain this, and also the digestibility of various articles? . . .

"The article did appear in the *Medical Recorder* early in 1825, but through an oversight on the part of someone was published as 'A Case of Wounded Stomach, by Joseph Lovell, Surgeon-General, U. S. A.' It is not stated how the error occurred, but toward the end of the same year . . . correction was inserted. . . .

"A mistake was made in stating that the case of wounded stomach produced by the penetration of a ball was communicated by Dr. Lovell. . . . It should have been mentioned as reported by Dr. William Beaumont, and also that it occurred at the post of Mackinac. . . ."

Shortly after that Alexis took "French leave" and was gone for several years, after which he again returned to Beaumont and was again the subject of additional experiments. The value of the investigation and the accuracy of the observations are monumental, and not in the least dimmed by the passage of more than a century.

Dr. Beaumont died in St. Louis in 1853, at the age of 67. St. Martin lived in poverty until 1880 when he died at the age of 83 in St. Thomas de Joliette, near Montreal.—O.R.C.

(Life and Letters of Dr. William Beaumont by Jesse S. Myer, A.B., M.D.)



## PRESIDENT'S PAGE

DEAR DOCTOR:

I once heard a layman telling of a harrowing experience as a boy. A sister had been ill for two days. The mother herself became ill during the second night. She was feverish, weak, and irrational. The other children huddled about, whimpering. And then, my friend added, "The door opened and in walked God—and it was the doctor."

So accustomed is the physician to the moments of anguish, fear, tragedy, and drama in the lives of others—moments that for them are unique and of great importance—that it is understandable that he may at times appear less responsive than he might wish.

But this is the core of the patient-physician relationship which is at the heart of the private practice of medicine in the American way. The wise physician senses this, and though he may rarely bother to put it into words, his life is lived in terms of it.

I submit to you that when every American citizen comes to feel that he can get a doctor whenever he needs one, be it day or night, and then is made to feel that he will not be forced to pay a doctor bill that he (the patient) believes to be unreasonable or not due, the socialization of medicine will be a lost cause—and the practice of medicine will be most rewarding to the physician.

*Sincerely,*

A handwritten signature in cursive script that reads "Thomas P. Butcher M.D.". The signature is fluid and elegant, with a large initial 'T' and a stylized 'B'.

*President*

## EDITORIAL COMMENT

### As the Year Ends

*Editor's Note. The following comments by Dr. Barrett A. Nelson, Manhattan, were presented to the House of Delegates of the Kansas Medical Society as Dr. Nelson completed his term of office as president of the Society.*

A year can be so aggravatingly short, especially if it is inaugurated with bursting enthusiasm. Your president is hopeful that his humble efforts have resulted in some measure of accomplishment for his Society.

But he does feel brimful of pride for the splendid accomplishments of the committees which have uniformly performed such magnificent tasks. Perusal of the published committee reports shows the tangible results of these diligent activities.

The Society can take satisfaction from the final solution achieved with unexpected smoothness and effectiveness in the implementation of the Healing Arts Act, the proceedings of the Healing Arts Board, and the splendid cooperation of the representatives of the osteopathic profession and the chiropractic members of the board.

We are gratified that a logical plan for providing medical care to the indigent population is promised in preliminary negotiations with the Board of Social Welfare.

The Centennial Committee has embarked on a most ambitious program for the momentous year ahead which will bring Kansas medicine before public attention with a series of events spread over the months of January to May. Under the able leadership of energetic, enterprising president-elect Thomas Butcher, it will be a year to remember.

As a fitting climax to our present year we are indebted to our Wyandotte County members and their hard working committees for an annual meeting with one of the best scientific programs in many a session.

Your president has enjoyed an exhilarating, stimulating experience in the office which he was honored to serve. The cordial, delightful relationships of that experience have been most pleasant and gratifying.

### The Year Ahead

*Editor's Note. The work of the Society for the year ahead was summarized in the following form by Dr. Thomas P. Butcher, Emporia, as he took office as president.*

Much of the work of the coming year has been

in progress in able committees. The following remarks will remind you of some of these projects and suggest others.

1. The Centennial Year of the Kansas Medical Society offers this state an opportunity for national recognition in the contributions we are making and can make to the problems of the nation's health. The Centennial Committee has plans well advanced and will need the support of all doctors as well as many lay persons. The "celebration" will extend from January 1, 1959, to include the state meeting at Topeka in May.

2. The Committee on Hospitals has been confronted with problems arising especially in the smaller hospitals (under 25 beds) wherein certain levels of standards in equipment, personnel, and performance have been inadequate. Under such conditions, the patient suffers, and the institution and persons serving therein are exposed to legal action. A "Joint Commission" acting in advisory capacity to help set up and foster minimum standards for such hospitals (which are too small for accreditation by the national agency) could go far toward protecting all parties from present defects.

3. The Committee on Public Relations is working on a year-around program (fitted to the centennial, but continuing beyond it) for telling the story of medicine to the public via television, radio, news releases, etc. Speakers' bureaus in various regions of the state might also prove useful.

4. Along the same line, attention should be given to a better integration of local medical societies with their communities. It is highly desirable that Kansas become known as a state wherein medical care is available to all persons at all times regardless of their ability to pay, or the hour of day or night. This is already established in some communities. It is further suggested that each physician may well consider the proposition that "No man owes me money for medical care who honestly, in his heart, feels that he doesn't." I know of one check for \$200 that was returned for just such a reason. It need not be an announced policy, but if a doctor follows it in fact, I submit to you that he is dollars to the good in the long run, and a lot happier.

5. The National Rural Health Conference will be held in Wichita in March, 1959, in connection with our centennial celebration. This promises to be a highlight of the year.

6. *Kansas legislation.* This is a legislative year, and with the Medical Practice Act having settled most of the disputes that have engaged the medical society for so many years, it is anticipated that a constructive program will be undertaken, having to do with such items as:

- a. Revision (and humanizing) of the Commitment Act (Mental Health Committee).

- b. Highway safety with reference to age limits, the unfit driver, etc., and other traumatic hazards, including farm machinery.
- c. The problems of workmen's compensation for occupational diseases as well as accidents.
- d. Sanitation, especially with reference to water pollution (Safety Committee).

7. *National legislation.* You are urged, if you agree, to contact Senators Frank Carlson and Andrew F. Schoepel, and your own Congressional District representative *against* the Forand bill and *favoring* the Jenkins-Keogh bill. Space will not permit a review of these measures here, which are familiar to most of you. The Forand bill represents a major step toward the socialization of medicine; the Jenkins-Keogh bill provides a means for the self-employed to set aside money for retirement.

8. *Problems related to indigent care throughout the state.* Can they continue to be handled on a local basis? Should the state society enter into a formal program for such care?

9. *Rehabilitation.* The restoration, so far as possible, of all persons who are disabled may become the most significant development in the medical field in the next generation. The technology of modern therapy has added years to life; it is imperative that we now add life to years.

10. It has been suggested that a state committee be established that would, on request of a local society, meet with that society for consideration of any matters the society deemed pertinent. Does this have merit?

11. *The Auxiliary.* It is anticipated that the members of the Auxiliary will have an increasing role in the work of the Kansas Medical Society, much of which falls naturally within their province.

This is a limited list of items for consideration. Each committee will have an agenda, some of greater length than the foregoing. Each of you is asked to help make the turn of our century a year that is constructive in the principles and ideals of the American way of life.

### Narcotics Registry

Prior to June 30 of each year every narcotics registry number must be renewed. This shall be done by writing the Director of Internal Revenue for Kansas, 412 South Main Street, Wichita. The renewal fee is \$1.00 for physicians, dentists, and veterinarians and \$3.00 for drug stores.

This becomes more important this year than previously because of the new Uniform Narcotics Act that it now on the statutes of this state. The new law more closely defines the use of narcotics than was true previously. It also adds some products that had not

been included in the list. According to the law, the definition of narcotic drugs now means "coca leaves, opium, cannabis, isonipecaine, amidone, isoamidone, ketobemidone and every other substance neither chemically nor physically distinguishable from them; any other drugs to which the federal narcotic laws may now apply, and any drug found by the state board of pharmacy and the state board of health, after reasonable notice and opportunity for hearing, to have an addiction-forming or addiction-sustaining liability similar to morphine or cocaine, from the effective date of determination of such finding by said state board of pharmacy and state board of health."

Prescriptions for such drugs must be written and signed with the registry number of the person prescribing. This is of considerable significance because failure to comply with this section may lead to serious penalties both by way of fines and imprisonment.

Exempted from the Narcotics Act is "administering, dispensing, or selling at retail any medicinal preparation that contains in one fluid ounce, or if a solid or semisolid preparation, in one avoirdupois ounce, not more than one grain of codeine or of any of its salts, or not more than one-sixth grain of dihydrocodeinone or any of its salts.

"The exemption authorized by this section shall be subject to the following conditions: (1) That the medicinal preparation administered, dispensed, or sold, shall contain, in addition to the narcotic drug in it, some drug or drugs conferring upon it medicinal qualities other than those possessed by the narcotic drug alone; and (2) that such preparation shall be administered, dispensed, and sold in good faith as a medicine and not for the purpose of evading the provisions of this act.

"Nothing in this section shall be construed to limit the quantity of codeine or of any of its salts that may be prescribed, administered, dispensed, or sold to any person or for the use of any person or animal, when it is prescribed, administered, dispensed, or sold in compliance with the general provisions of this act."

The law requires that records be kept and warns against fraud, abuses, deceit. One interesting statement in the new law is as follows: "Information communicated to a physician in an effort unlawfully to procure a narcotic drug, or unlawfully to procure the administration of any such drug, shall not be deemed a privileged communication."

New this year also is a special requirement about the registry renewal. There will now be required an exact address giving the location of the place of business or of practice for the person to whom the registry number is assigned. In a city an office address within a building or an accurate street address will be sufficient. A new problem has arisen in small towns,



however, where streets are not numbered. Some means must be given of effectively describing the location. A street intersection is not sufficient. It could be identified by block and lot number. If the address is in a rural area, an exact distance from some well established point must be given.

A considerable penalty may accrue to the physician who fails to notify the office of his change of address within 30 days after such a change is made. Technically, such a person is working with an invalid registry number. Newly licensed physicians also should be cautioned not to administer narcotics until a registry number has been obtained. There is some delay in accomplishing this. The office of Internal Revenue advises that the registry number may be applied for at the time of applying for a practice license. The registry number will be withheld until a license is obtained.

It is especially important this year, therefore, that each physician who expects to use narcotics renew his registry number by sending \$1.00 and the correct information about his address to the proper office in Wichita.

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### Regulations on Radiation Sources

Regulations providing for the registration of users of radiation sources adopted by the Kansas State Board of Health on January 17, 1958, require that "every person using, operating, or storing any radiation machine, or storing, manufacturing, using, or handling any radioactive material shall register with the State Board of Health within 30 days following receipt of such machines or materials, or commencement of such use, operation, storage, manufacture, or handling."

The regulations have as their purpose the determination of the extent of the problem of possible radiation health hazards and the establishment of a program of voluntary control of radiation health hazards based on adequate education of the users of radiation and the general public.

Precise knowledge of the tolerance of the human body tissues to ionizing radiation is not yet available. There is, however, considerable evidence that somatic tissues and germ cells are altered or damaged in proportion to the total dose of radiation which they receive at one exposure or to the accumulated dosage from exposure at intervals over a period of time. These injuries shorten life and adversely affect the reproductive system. They cause sterility and harmful genetic changes. They appear to cause leukemia and malignancies at local points of concentration.

It is believed that the natural "background" radiation to which we are more or less constantly exposed

in itself exerts a considerable influence on plant and animal life on this earth. In addition to these natural sources, the man-made sources of ionizing radiation to which the average citizen may be exposed purposely or by accident have greatly increased in number since 1945. Increased use of radiation in the medical arts, industry, and research has vastly increased the importance of radiation as an occupational health hazard. There is no accurate method of estimating the number, location, or nature of these sources. It is necessary to know about these potential sources of radiation hazard since man cannot be relied on to act as the indicator of exposure because the presence of radiation is insensible and immediate clinical effects are either absent or too vague to recognize.

The general public has an inordinate fear of radiation hazards, so great that reaction to the use of radiation has already seriously interfered with the constructive use of radiation in the improvement of the public health, welfare, and material productivity. We must dispel this fear and revive the confidence of the public by demonstrating in a definite manner that responsible persons and groups are actively engaged in a program to protect them against unnecessary radiation.

The State Board of Health hopes to provide information concerning the safe use of radiation to all registered users of radiation through the cooperation and assistance of organized groups such as medical and dental societies, engineer groups, teaching and research groups, industrial groups, and other groups having a considerable number of individuals with an extensive knowledge of radiation and the health hazards attending the uses of radiation.

The State Board of Health has, since October, 1956, been guided in the promulgation of these regulations by an Advisory Committee on Radiological Health composed of six well-qualified and competent representatives of the medical and dental professions, industry, agriculture, and research and teaching. The board hopes to retain the services of this group indefinitely as technical advisors and to actively consult with organized professional and technical groups in order to carry out a practical program to avoid radiation injury without interfering with the desirable uses of radiation. The efficiency with which the board demonstrates its ability to cope with the radiation health hazard problem will determine whether or not a voluntary program will be successful or whether legislation which severely restricts the use of radiation, to assure safety in its use, is necessary.

Nothing in the regulations implies limitation of the kind and amount of radiation that may be intentionally applied to a person for diagnostic or therapeutic purpose by, or under the direction of, a licensed physician or dentist.

## Programs of State Institutions

Care and treatment services for the mentally sub-normal population of Kansas are centered at two state residential institutions located at Winfield and Parsons. Winfield State Hospital and Training Center provides services for mentally deficient patients under 6 and over 21 years of age, and for the multiple handicapped of all ages, while the State Hospital and Training Center at Parsons has a treatment and training program designed for rehabilitation of the educable and upper level trainable retarded between 6 and 21 years of age. Winfield has provided services for the mentally retarded throughout its history. The function of the institution at Parsons was changed from that of a hospital for epileptics to its present status in 1953. Admission to either of the institutions is voluntary upon application by the parents or guardian without the formality of court commitment.

Factors involved in admitting patients to the institutions are legal residence, age, mental level, and physical condition. It must be determined that the applicant is incapable of receiving instruction in the public school system. At Parsons the administrative policy decision has been made that an applicant should possess an I.Q. of 40 or above, he must be ambulatory, toilet trained, and able to feed himself and follow instructions if he is to benefit from the program. However, all applicants within the age restriction, regardless of mental level or physical impairments, are admitted to Parsons for a 90-day evaluation study prior to transfer to Winfield. This procedure creates a problem in that the latter institution is over-crowded and cannot accept transfers on schedule. As a result, many extremely handicapped children remain at Parsons for as long as two or three years, even though they cannot be enrolled in the active program, and others are added to the growing number on the waiting list.

Other than deficiency, the mental condition of an applicant for either institution is not considered in the criteria for admission except that Kansas law provides that "no person shall be admitted who is suffering from severe mental disorder."<sup>1</sup>

Parsons has, however, integrated the psychiatric concept into its entire program and extends the clinical phase to include treatment of the neuroses and

behavior problems common to the population there. Because Winfield houses the multiple handicapped and/or the severely mentally deficient, its program is geared primarily to medical care and physical habilitation of bed patients and training in the basic social functions for non-hospitalized patients. Academic and vocational training devices are incorporated for those patients capable of participation.

Winfield serves a total patient population of 1,000 and its medical department is staffed by three resident physicians and usually four externs. The superintendent is a medical doctor. Consultants in neurology, ophthalmology, nose, ear, and throat, and orthopedics are available for the diagnosis and treatment of individual cases. Out-patient services and long-term medical care and physiotherapy are provided in a new treatment and rehabilitation center opened in October of 1956.

The professional staff at Parsons consists of a medical superintendent who is a psychiatrist, two staff psychiatrists, and a pediatrician. Two medical externs augment the permanent staff. Average daily population is 550 at present, including more than 100 adults remaining from the epileptic treatment program. Consultants in the fields of neurology and child psychiatry from the Menninger Foundation and in music therapy, speech pathology, and special education from the University of Kansas, are affiliated with the institution.

Four new residential units are to be opened at Parsons in the near future, and patient population is expected to increase by approximately 130. Some of this number will be transferred from Winfield in exchange for multi-handicapped children now housed at Parsons, but the majority will be from the waiting list of 240 applicants.

Clearly defined program objectives were worked out under difficult circumstances during the transition at Parsons when the program for retarded children was inaugurated. Concurrent with arranging concrete operating mechanics for the institution, well-philosophical concepts for the care of institutionalized children were being developed and psychiatry's contribution to the treatment of mentally retarded children was being expounded for the first time. Goals were more firmly established when the multi-disciplinary approach to treatment was developed within the framework of the psychiatric concept of total treatment. The major disciplines of psychiatry, social sci-

1. G.S. 1955 Supp. 76-1410



# Winfield and Parsons

and psychology form the nucleus of the present program with the adjuncts of occupational therapy, music therapy, academic training, recreation, vocational training, and religious education comprising active portions of the program. Personnel in the Training Services Section provide the sustained care associated with a custodial institution and at the same time make an important contribution to the rehabilitative "team" approach through their intimate contact with the patient population. This dynamic approach to care and treatment of the retarded is intended to meet all the needs of the child rather than to make the child adapt to a particular program.

In November of 1957 the National Institute of Mental Health granted \$165,025 for a three-year study into the language and communication problems of children at the Parsons institution. The funds appropriated to the University of Kansas to be administered under the auspices of the Bureau of Child Research. Dr. Richard Schiefelbusch, director of the bureau, with the writer, co-direct the project. Dr. D. B. Foster, Dr. Cotter Hirschberg, and Dr. John Segerson from the Menninger Foundation, Dr. Margaret Byrne and Dr. M. Erik Wright from the University of Kansas, and Dr. Richard Bartman, Dr. John Fair, and Mr. Lloyd Lockwood from the Parsons hospital make up an advisory committee to aid in the project.

The exploratory phase of the study is now under way and constructs relative to language and communication are being formulated. Evaluation procedures will be designed and the testing phase of the project will form the basis for selecting the experimental and control groups of children for further study. Speech samples among children in the chronological age group of 6 to 16 with mental ages from 3 to 6 will be studied, and subsequently a program of language and communication training will be initiated. Total test information will include neurological and psychometric data in addition to determination of intelligence levels. Conditions of cerebral injury, perinatal trauma, and autistic tendencies will be carefully measured for influence on verbal behavior. Grants-in-aid for research into the problems of mentally deficient children, and the unremitting effort to maintain high program standards at the two Kansas institutions serving the deficient, have little value when viewed in terms of ultimately returning the child to his home or community.

In summarizing existing conditions and future prospects for retarded children and their parents, mention must be made of the great lack of community facilities for preventive pre-institution and after-care services in Kansas.

The fundamental principle guiding those who are interested in the welfare of children is that a child should not be separated from his family unless absolutely necessary and, if circumstances demand separation, he should be returned to the family as soon as possible. In many instances it is not necessary to hospitalize the mentally deficient child, but if diagnosis shows that such a step is desirable, and that the institutional program has something of benefit to offer the child, the family and community must be ready to accept him when he is able to return. In this area of parent-child relationship, the guidance center proves invaluable in contributing to the necessary adjustment; the social welfare agency aids the family to establish a proper environment for the retarded child; and society as a whole works toward acceptance of the retarded child and his integration into community life.

Diagnostic clinics, social welfare services, parent and child guidance, special education classes in public schools, foster care homes for the retarded without families, sheltered workshops for the severely retarded—all should be established in the community to work with the institution in a comprehensive program of pre-institution and after-care services. The institution should be considered as an interim in the life of a retarded child, an extension of community resources, available when needed, but not the end result. Custodial care for mildly or moderately retarded children is out of the question, from both a financial and a moral standpoint. It is the obligation of public institution management to lessen the burden on the taxpayer when possible and, more important, to accept the moral responsibility of preparing the retarded for their particular place in life, ready to enjoy that life to the fullest extent possible, however limited. An institutional program should be designed for that purpose only and its merit judged from that aspect alone.

*H. V. Bair, M.D.*

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One of a series of articles prepared by the Committee on Mental Health of the Kansas Medical Society.



## Retrolental Fibroplasia

Assisting a premature infant through the perils and vicissitudes of early extrauterine life, with a physiologically competent child as a result, is one of the pleasures of a physician who cares for the "newly arrived." Conversely, one of the biggest disappointments is to find that the premature infant on whom one has lavished a great deal of professional care is to spend the remainder of his life with sightless eyes. Such an outcome is met more commonly with this group of infants than it should be. That this physical catastrophe is of concern to the medical profession is demonstrated by the numerous articles and reports of investigative studies that appear in the literature. First and foremost among the disease entities that produce blindness in this group of infants is retrolental fibroplasia (RLF).

Review of the literature at this time would certainly suggest that there are a number of factors that have a part to play in the morbidity of this disease. Prematurity itself is a notable influence. The smaller the infant, by weight, the greater the rate of incidence. In general, the infant who weighs less than 1500 grams at birth experiences one chance out of three of developing some stage of retrolental fibroplasia. If this infant in this weight range is one of multiple birth, the hazard may approach the ratio of two out of three chances. The handicap is usually more severe in this instance too, for the regression of the proliferative stage does not occur with frequency and the cicatricial stage then supervenes. Closely related to the weight of the infant at birth, and yet a distinct factor in itself, is the gestational age. The longer the intrauterine existence, the less the opportunity for the disease to develop even though the weight of the fetus may not be materially increased. This fact suggests that the physiologic maturation of the retinal vessels is protective. The gestational age of 34 weeks or more affords the infant an opportunity to have normal eyes. Quite patently, if premature labor is prevented, the problem of RLF is solved.

However, among the external factors that apply after the infant is delivered, there is a paramount one: *oxygen*. To a great extent this factor may be controlled by the attending physician. The infant must have a sufficient amount to meet his physiologic needs, but *no excess* amount. It is significant that the partially cyanotic infant whose problem is anoxia does not develop cicatricial RFL with great frequency. In this instance where there is impairment of the oxygen-carbon dioxide exchange, increasing the environmental level of oxygen is not synonymous with increasing the arterial blood oxygen saturation level. It is the hyperoxia state in the retinal vessels and not the increased oxygen level in the inspired air that stimulates proliferative vessel change.

In exercising care then in the use of oxygen one must keep in mind that the concentration level of the gas in the incubator is not at all a measurement of the arterial blood level of oxygen, and that therefore there is no "safe level" below which RLF will not ensue. Levels of 25 per cent may be as harmful as levels of 40 per cent to 50 per cent. Prolongation of any degree of hyperoxia is detrimental and is to be avoided. If the infant is capable of normal gaseous exchange, 12 hours may be too long. In situations where the infant's weight is less than 1000 grams, even the oxygen concentration of normal air breathed over a period of time may unfortunately be too great. One can not escape the conclusion that oxygen must be utilized cautiously, and then only to combat the immediate emergency of fatal deficit states in the shortest possible exposure time.

One of a series of articles prepared by the Committee on Child Welfare of the Kansas Medical Society.

# Clinicopathological Conference

## *Indigestion, Gastrointestinal Hemorrhage, Coma, and Convulsions*

### Case Presentation

We are discussing today a 47-year-old white man who was admitted to KUMC for the first time on September 11, 1956, complaining of abdominal pain and swelling. He died on September 20, 1956.

Since 1940 he had had repeated episodes of upper abdominal pain which lasted for one or two minutes. Their frequency varied, and he occasionally experienced pain daily for three or four months; at other times, he was symptom-free for several months. The pain did not radiate and was relieved by food and antacids. Scleral icterus, dark urine, and light stools had been noted for about one year before admission, and melena was noted on two occasions. Six weeks before admission he had abdominal distention, swelling of the feet and legs, and a weight gain of approximately 20 pounds. His systolic blood pressure at that time was reported to be 215. During the five weeks before admission the edema and abdominal distention decreased, but the abdominal pains became more severe.

The patient's mother had died of cancer of the liver. The family history was otherwise non-contributory. The patient had been a store manager. He had drunk alcohol excessively for about 25 years, but his past history was otherwise not significant.

He was a well developed, well nourished, alert, white man without dyspnea, orthopnea, or edema. His blood pressure was 160/90; pulse rate, 116; temperature, 98 degrees. There was no cyanosis or icterus. Numerous spider nevi were noted on his chest and shoulders, and his palms were red. His oral hygiene was poor. The lungs were clear to percussion and auscultation, but the diaphragms were elevated bilaterally. The heart sounds and rhythm were normal, and no murmurs or friction rub were heard. The abdomen was protuberant, and there was a questionable fluid wave. The liver was palpable 6 cm. below the right costal margin; it was smooth and non-tender. The spleen was not palpable. There was no pedal edema. The testes appeared somewhat atrophic, and there was questionable gynecomastia. The rectal ex-

amination was negative. The neurological examination was negative, and his gait was normal.

The urine was acid with a specific gravity of 1.044, 2 plus sugar and few waxy casts, but no albumin. The red count was 4,950,000 with 14.3 gm. hemoglobin. The white count was 10,950 with 69 per cent polymorphonuclears (68 per cent filamented), 22 per cent lymphocytes, and 8 per cent monocytes. The VDRL test for syphilis was negative. The blood urea nitrogen was 19 mg. per cent; serum sodium, 129 mEq/L; potassium, 3.4 mEq; chloride, 94 mEq; carbon dioxide, 32.3 mEq; calcium, 3.8 mEq; phosphorus, 1.5 mEq. The gastric analysis showed a maximum free acid of 120 degrees. The glucose tolerance fasting specimen was 277 mg. per cent; first hour, 390 mg. per cent; second hour, 380 mg. per cent; third hour, 330 mg. per cent; fourth hour, 330 mg. per cent; and glucose was present with all of the urine specimens. The total serum bilirubin was 0.8 mg. per cent; direct bilirubin, 0.2 mg. per cent; serum albumin, 3.86 mg. per cent; serum globulin, 2.54 mg. per cent; total cholesterol, 94 mg. per cent with 49 per cent esters, bromsulphthalein retention, 14 per cent; alkaline phosphatase, 1.5 millimol units; thymol turbidity, 4 units.

Upon admission the patient was placed on an ulcer regimen consisting of six feedings daily of a bland diet and milk or magnesium trisilicate with aluminum hydroxide (Gelusil) every hour and scopolamine methylbromide (Pamine) 5 mg. at bedtime. On September 15 he vomited coffee-ground material and passed about 500 ml. of blood by rectum. The hemoglobin at that time was 7.5 gm. He was given a transfusion of 500 ml. of whole blood, after which the hemoglobin was increased to 9 gm. On September 18 he had a tachycardia of 110, became restless, and complained of abdominal pain. His blood pressure was 115/65; the hemoglobin was 6.4 gm. He was again transfused with 500 ml. of whole blood. That evening he became agitated and confused, and he was given 60 mg. of phenobarbital, intramuscularly, but with no relief. At 7:45 p.m. he was given 30 mg. of codeine, intramuscularly, and at 10:55 p.m. he received 100 mg. of meperidine hydrochloride (Demerol). The next day he was unresponsive. The serum sodium was 138 mEq; potassium, 2.9 mEq; chloride, 90 mEq; carbon dioxide, 33 mEq; blood ammonia, 1,166 mcg. per cent; and blood sugar, 290 mg. per

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of medical students.

cent. The hematocrit was 29 ml. with 9.3 gm. of hemoglobin.

He was given 50 units of regular insulin at 8:30 a.m., 11:00 a.m., 1:00 p.m., and 3:00 p.m., and the blood sugar decreased to 185 mg. per cent. He was given 23 gm. of monosodium glutamate in 5 per cent glucose, intravenously, and hydrocortisone and potassium chloride were also given by vein. He developed intermittent multifocal convulsions which were fairly well controlled with intravenous diphenylhydantoin sodium (Dilantin), paraldehyde, and magnesium sulfate. Blood was removed from the stomach with gastric washings, and he was given several enemas.

In spite of medications and treatment there was no apparent change in his condition, and he continued to have intermittent convulsions and coma. His temperature rose to 105 degrees, and he died suddenly at 7:00 a.m. on September 20, 1956.

Dr. Robert E. Bolinger (moderator): Are there any questions?

Richard Lockwood (fourth year medical student): Was his ulcer management followed closely before and after the x-ray examination?

Dr. Donald L. McCoy (resident in medicine): He was on the same medication until September 19.

Haywood Jackson (fourth year medical student): When did his first gastrointestinal bleeding occur?

Dr. McCoy: He first vomited blood on September 14.

Terrance Van Buskirk (fourth year medical student): Were there any changes in his skin color?

Dr. Robert Manning (resident in medicine): No significant changes were noted.

Mr. Jackson: How much monosodium glutamate did he receive?

Dr. McCoy: He received at least two of the 23 mg. units.

Gerald Kerby (fourth year medical student): Had he ever been hospitalized before?

Dr. McCoy: No.

Francis Ikezaki (fourth year medical student): Had he been seen by a physician before his admission?

Dr. Bolinger: At one time he had been treated for six weeks.

Mr. Ikezaki: Had he had any blood transfusions before entering this hospital?

Dr. Bolinger: No, he had not.

Morteza Jenab (fourth year medical student): What was the blood pH?

Dr. Bolinger: It was 7.78 on September 19 at the time he was having convulsions.

Theodore Hostetler (fourth year medical student): What was his weight?

Dr. McCoy: He weighed 175 pounds on admis-

sion, and there was no appreciable weight change during his hospitalization.

Mr. Hostetler: Was his blood pressure maintained throughout the hospital course?

Dr. McCoy: Yes, his blood pressure averaged 140/70.

Mr. Jackson: Were any other hepatograms done?

Dr. McCoy: The first one was done on admission and showed the total cholesterol to be 125 mg. per cent. A second one, on September 19, showed the total cholesterol to be 94 mg. per cent.

Mr. Kerby: Did he receive insulin before admission?

Dr. Bolinger: It was stated that he had not received insulin because there was no acetone in the urine.

Mr. Jackson: Was there any estimation of circulating eosinophils?

Dr. Bolinger: I do not believe so.

Mr. Ikezaki: Did he have flapping tremors or fetor hepaticus?

Dr. McCoy: There was fetor, but I do not know about the tremors.

Mr. Hostetler: Will you describe the chest examination during the last episode?

Dr. McCoy: Moist rales were present in his chest during his last hospital day.

Mr. Jenab: What was his urinary output?

Dr. McCoy: During the last three days the output was 3200 ml., 3000 ml., and 2300 ml.

Mr. Hostetler: Was the gastric tube in place when he received the monosodium glutamate?

Dr. McCoy: No.

Mr. Jackson: Was the patient icteric?

Dr. Manning: He was slightly icteric.

Mr. Jenab: Was he drinking excessively before the edema developed?

Dr. McCoy: Yes, he was drinking heavily at that time.

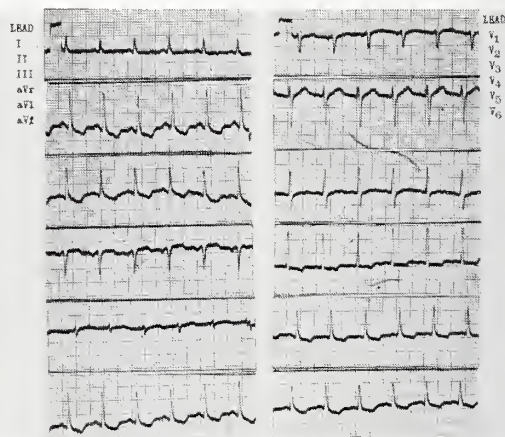


Figure 1. Electrocardiogram taken on September 12, 1956.



Mr. Jenab: Had he lost weight before the edema developed?

Dr. McCoy: There is no information about that.

Dr. Bolinger: Are there any other questions? Then may we have the electrocardiograms, please?

Mr. Ikezaki: The electrocardiogram taken on September 12, 1956 (Figure 1) shows tachycardia. There is S-T segment depression in leads II, III, aVF, V<sub>3</sub>, V<sub>4</sub>, V<sub>5</sub>, and V<sub>6</sub>. I interpret this tracing to be compatible with myocardial ischemia.

Dr. Bolinger: May we have the x-rays, please?

Mr. Hostetler: The first chest x-ray, PA and lateral (Figure 2), taken on September 12, 1956, shows no bony abnormalities. The diaphragm is elevated bilaterally, more on the left. The vascular markings are prominent.

There are no bony abnormalities in the kidney-ureter-bladder film which was taken on September 14, 1956. There is hepatomegaly to the iliac crest and probably splenomegaly.

The studies of the upper gastrointestinal tract show a normal stomach, but the duodenal border is distorted. There are areas of radiolucency in the study of the esophagus. I interpret this series as compatible with active duodenal ulcer and esophageal varices (Figure 3).

I see no abnormalities in the film of the barium enema; the pattern of the large intestine is normal, and I interpret this to be a normal barium enema.

Dr. Bolinger: Do you have any comment, Dr. Germann?

Dr. Donald R. Germann (radiologist): Concerning the barium enema study, we must decide whether or not the colon along the hepatic flexure is displaced downward. A large posterior lobe of the liver may show up on the plain film, but the hepatic flexure may be in the normal position. I believe that the hepatic flexure shown in this film is in the normal position, and that there is no enlargement of the liver.

The gastrointestinal study shows extensive mucosal hypertrophy of the stomach and grossly deformed structure of the bulb of the duodenum. We thought there was a crater, not at the superior portion of the bulb, but farther down.

I do not want to minimize the changes in the esophagus, but the patient had hyperacidity and mucosal hyperplasia, and some of these changes were possibly reflected in the esophagus. There is evidence of esophageal varices.

I do not believe that hepatic enlargement is shown on the kidney-ureter-bladder film. There are no masses or stones. The spleen probably occupies its usual position, and I do not believe that there is splenic enlargement.



Figure 2. Chest x-ray on September 12, 1956.



Figure 3. Spot film showing duodenal bulb.

Dr. Bolinger: Three facts stand out in our case: the possibility of liver disease, the hemorrhages, and the terminal event. Mr. Jackson, will you please discuss the differential diagnosis.

### Differential Diagnosis

Mr. Jackson: This 47-year-old white man was admitted for the first time to this hospital on September 11, 1956, complaining of abdominal pain and distention. Since 1940 he had had repeated paroxysms of upper abdominal pain which persisted for one or two minutes. The frequency varied: occasionally he had daily episodes for as long as four months; at other times he had been symptom-free for several months at a time. The pains did not radiate and were relieved with food or antacids. About one year before admission scleral icterus, dark urine, and light stools had been noted. He had had tarry stools on two occasions. About six weeks before admission he complained of abdominal distention, swelling of the feet and legs, and a weight gain of 20 pounds. His systolic blood pressure at that time was said to have been 215. During the five weeks before admission, the edema and abdominal distention decreased somewhat, but the abdominal pains became more severe. He had had a history of alcoholism for 25 years.

Spider nevi were noted on his chest and shoulders. The diaphragms were elevated, bilaterally. There was palmar erythema, ascites, hepatomegaly, atrophic testes, and questionable gynecomastia.

The urine had a specific gravity of 1.044 with two plus sugar. The serum electrolyte values, total cholesterol, and cholesterol esters were low, and there was increased carbon dioxide. Bromsulphonthalein retention was high. There was an abnormal glucose tolerance curve, increased prothrombin time, borderline thymol turbidity, gastric hyperacidity, and ketonuria.

He was placed on an ulcer regimen on September 11. On September 15 he vomited coffee-ground material and passed gross blood by rectum. The hemoglobin dropped from 14.3 gm. to 7.5 gm. He was given 500 ml. of whole blood. Two days before death he became restless, developed tachycardia, and complained of abdominal pain. His blood pressure was 115/65, the hemoglobin was 6.4 gm., and he was given another 500 ml. of whole blood. That evening he became confused and agitated. At 6:45 p.m. he was given 60 mg. of phenobarbital, but his agitation increased. One hour later he received 30 mg. of codeine, intramuscularly, and at 10:55 p.m. he received 100 mg. of meperidine. The next day he was unresponsive. Electrolyte values were essentially unchanged. The hemoglobin was 9.3 gm.; blood ammonia, 1,167 mcg.; and blood sugar, 290 mg. per cent. He received 200 units of regular insulin in six and one-half hours, and the blood sugar decreased to

188 mg. per cent. He was given 23 mg. of monosodium glutamate and hydrocortisone plus potassium chloride, intravenously. He developed multifocal seizures which were only partially controlled with diphenylhydantoin, paraldehyde, and magnesium sulphate. Blood was removed from the stomach by gastric washings. There was no change in his coma or convulsions, and his temperature rose to 105 degrees. He died suddenly on September 20, 1956.

I shall base my discussion on hepatomegaly. I will exclude such unlikely possibilities as venous congestion, obstructive biliary disease, liver abscess, pyogenic infections, syphilitic infections, brucellosis, schistosomiasis, hydatid cysts, lymphoma, leukemia, and metabolic diseases. Acute infectious hepatitis can be ruled out because there was no fever, the liver was not tender, and the serology was negative. There was no history of toxins, and there was no secondary focus or sign of amyloid disease.

Metastatic tumor is a possible diagnosis because of the nodular liver, hepatic pain, fever, malaise, anemia, increased serum alkaline phosphatase, and bromsulphonthalein retention. Primary tumor must be considered because of the rapidly growing abdominal mass, pain, distention, weight loss, fever, anorexia, jaundice, and hypoglycemia. Also compatible with this disease is the decreased white count, the increased platelets, serum alkaline phosphatase, and serum mucoproteins. I will also consider chronic hepatitis with repeated zonal necrosis.

Hemochromatosis is found in alcoholics, usually becoming symptomatic at 40 to 50 years of age. Skin pigmentation, diabetes, testicular atrophy, hepatomegaly, portal hypertension, ascites, and spider nevi are seen with varying incidence. The diabetes usually requires more insulin than other forms of this disease. Cardiac or hepatic death may result. The fasting serum iron is increased; the iron binding capacity may be decreased. An abnormal glucose tolerance curve is seen with glycosuria. The bromsulphonthalein excretion may be normal.

I believe our patient's symptoms fit the clinical picture of diffuse hepatic fibrosis. This disease is found in about three per cent of autopsies and predominates in men. Seventy per cent of these patients have a history of chronic alcoholism.

The primary injury to the liver is the result of a metabolic defect caused by unbalanced caloric nutrition, lack of specific dietary components, or dietary imbalance. In chronic alcoholism the dietary imbalance plays a major role. Changes in the liver vary from an increased central and periportal fat to cirrhosis with repeated injury to portal areas and increased derangement in hepatic function. There may be few abnormalities early in the disease because of the great reserve of the liver. In the later stages there

is hepatic insufficiency. Retention of bromsulphonthalein increases; albumin, cholesterol, and cholesterol esters decrease, and there is coma, jaundice, anemia, hemorrhage, ascites, ankle edema, hyperestrinism, spider nevi, pectoral alopecia, gynecomastia, palmar erythema, testicular atrophy, portal hypertension, varices, collateral circulation, splenohepatomegaly, and hypersplenism.

The x-rays confirm the active ulcer that our patient had. About 14 per cent of patients with diffuse hepatic failure developed peptic ulcerations at some time during the course of the disease. The etiology is unknown but may be due to alcoholism or increased levels of circulating corticoids. Our patient may have had multiple transfusions while being treated elsewhere, and this might have resulted in hemosiderosis accounting for a pancreatic, insulin-resistant diabetes.

He had a hypochloremic, hypokalemic, metabolic alkalosis as a result of increased levels of circulating corticoids, especially aldosterone. The large amount of monosodium glutamate he received may have aggravated his alkalosis. I believe that he died in hepatic coma precipitated by gastrointestinal hemorrhage and aggravated by the administration of barbiturates.

In summary, I believe this patient had diffuse hepatic fibrosis; active duodenal ulcer with hemorrhage; transfusion hemosiderosis; hyperchloremic, hypokalemic metabolic alkalosis, and secondary aldosteronism.

Dr. Bolinger: What is your diagnosis, Mr. Ikezaki?

Mr. Ikezaki: Laennec's cirrhosis with bleeding duodenal ulcer.

Dr. Bolinger: Mr. Kerby?

Mr. Kerby: In the absence of serum iron I cannot rule out the possibility of hemochromatosis and possibly hemorrhage from the esophageal varices.

Dr. Bolinger: On what do you base your diagnosis of hemochromatosis?

Mr. Kerby: This patient had hepatomegaly, testicular atrophy, spider nevi, and evidence of portal hypertension. There was a diabetic glucose tolerance curve, and his hyperglycemia was not sensitive to insulin. Pigmentation was not present, but this occurs in 20 to 30 per cent of patients with hemochromatosis.

Dr. Bolinger: What is your diagnosis, Mr. Hostetler?

Mr. Hostetler: Bleeding duodenal ulcer with Laennec's cirrhosis.

Dr. Bolinger: Our patient had a terminal convulsive episode which was not characterized by the classic picture of flapping tremor. What do you think caused this agonal convulsion?

Mr. Jenab: I believe the patient had metabolic alkalosis which caused his convulsion. Apparently, the administration of monosodium glutamate at that time

superimposed on the possibility of secondary aldosteronism and the low potassium and chloride, resulted in the metabolic alkalosis which precipitated the convulsions.

Dr. Bolinger: The patient was apparently lucid until September 15 when he suddenly became confused. What factors could have contributed to this?

Dr. George L. Curran (internist): This man received codeine and Demerol, both of which are detoxified by the liver. Phenobarbital is largely excreted in the urine, but it has been shown experimentally that after the circulation of a dog liver has been impaired with resultant inadequate oxygenation, the administration of phenobarbital causes an increase in the serum transaminase as evidence of hepatic necrosis. In our patient we must consider the causes of the liver damage which did not allow for the adequate detoxification of the codeine and Demerol. We also know that this patient's ammonia level was high, and this probably contributed to his mental confusion. He was a chronic alcoholic and had liver damage. It has been found that alcoholics have low serum magnesium levels. If the same dosage of magnesium is given to normal individuals and to chronic alcoholics with liver damage, it is possible to produce a positive magnesium balance in the normal individuals, but it cannot be produced in the alcoholics. It is apparent then that this man had a deficient serum magnesium content, and it has been documented that this deficiency can cause central nervous system symptomatology ranging from gross tremor and confusion to coma and convulsion. Our patient had a hypokalemia, and it is known that in cases such as this there can be superimposed central nervous system symptoms.

Dr. Bolinger: Our patient was referred here for surgical correction of his ulcer. Dr. Klotz, what was the problem of surgery on this patient for the correction of his peptic ulcer, and what were the possible causes of his hemorrhage?

Dr. Arthur Klotz (internist): There were several reasons for refusing surgery on this man. There was the problem of duodenal ulcer in combination with abdominal pain, and I believe this could have represented pancreatitis. A duodenal ulcer can be produced with great uniformity, experimentally, by diverting the pancreatic secretions from the duodenum. Furthermore, there is elevation of the serum pancreatic enzymes in pancreatitis. Our patient was a chronic alcoholic, and for this reason he was entitled to have recurrent pancreatitis.

Dr. Bolinger: May we have the pathologist's report, please?

### Pathological Report

Dr. James B. Caulfield (pathologist): A large ulcer crater was found in the duodenum. The ulceration



extended into the pancreas and involved several large arteries. At one point there was complete erosion with numerous areas of thrombosis. The gastrointestinal bleeding that precipitated the fall in blood pressure and the decrease in the hemoglobin could be directly attributed to the vascular erosion at the base of the ulcer. Digested blood was found only in the colon.

There was evidence of necrosis of the liver (Figures 4 and 5). There was accentuation of the lobular pattern as a result of periportal fibrosis which is considered to be a postnecrotic lesion. In addition, there was centrallobular necrosis and extensive fatty metamorphosis which was recent and was probably the result of the prolonged hypotension. The central anoxia, secondary to the hypotension, may have been accentuated by the cirrhotic process because portal fibrosis compromises the arterial flow to the lobule. The terminal coma and death were probably the result of severe liver damage, as evidenced by the high blood ammonia levels and the intolerance to phenobarbital.

The liver, spleen, pancreas, thyroid, pituitary, mesenteric lymph nodes, stomach, and adrenals all showed evidence of excessive iron deposition within appro-

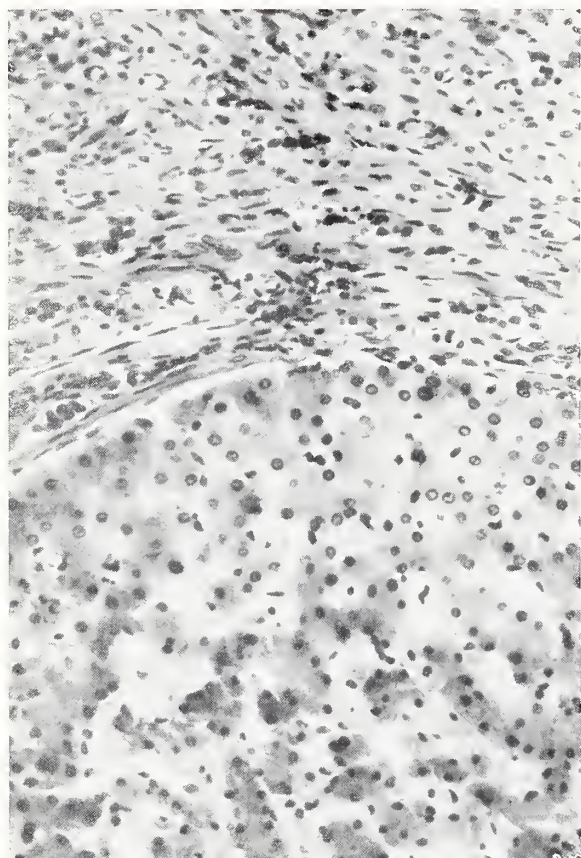


Figure 4. Photomicrograph of the liver showing dense fibrosis of the periportal region and preservation of the liver cells at the periphery of the lobule.

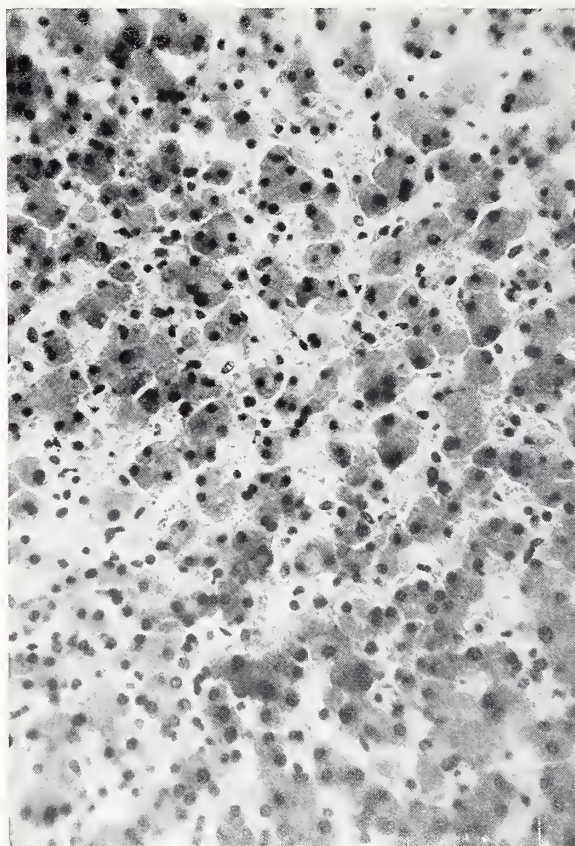


Figure 5. Photomicrograph of the necrotic central portion of a liver lobule showing deeply stained pyknotic nuclei and smudgy cytoplasm.

priate epithelial and reticuloendothelial cells. There was no evidence of fibrosis in relation to any of the intracellular iron. The only organ with any abnormal fibrosis, the liver, clearly showed the iron to be within the parenchymal and bile duct cells.

An interesting iron distribution was seen in the thyroid (Figure 6). The low cuboidal cells, commonly thought to be in a resting state, were quite free of iron; but the tall columnar cells, to which secretory and resorptive activity is ascribed, contain iron.

An iron determination of liver tissue revealed a total liver iron of 1.5 gm. or only about three times as much iron as is normally present within the liver.

The presence of iron in many organs that showed no fibrosis, the peculiar distribution of iron in the thyroid, and the small total quantity are most compatible with a recent deposition of iron rather than prolonged deposition.

The first transfusion was given six days before death. At no time did the serum bilirubin rise to abnormal levels; therefore, it would seem that hemolysis either due to a transfusion reaction or fragile erythrocytes being transfused, or normal fragmentation of these erythrocytes due to age, cannot be implicated in the iron deposition.

The lungs were the site of a terminal bronchopneumonia.

I believe that this patient had a bleeding ulcer that led directly to the hypotension, liver necrosis, and death. The bleeding ulcer provided a source of iron, and the high gastric acidity enabled the iron to be maintained in a ferrous state which could be rapidly reabsorbed. The reabsorbed iron was deposited in active epithelial cells and reticuloendothelial cells, giving an appearance of hemosiderosis. The old post-necrotic scarring is probably of importance because it would act synergistically with any extrahepatic condition that leads to a decrease in the blood supply to the liver.

Dr. Bolinger: Did this patient have idiopathic hemochromatosis?

Dr. Caulfield: I do not believe that he had a true hemochromatosis. I believe he did have a deposition of iron in epithelial cells, this iron being acquired from the gastrointestinal bleeding.

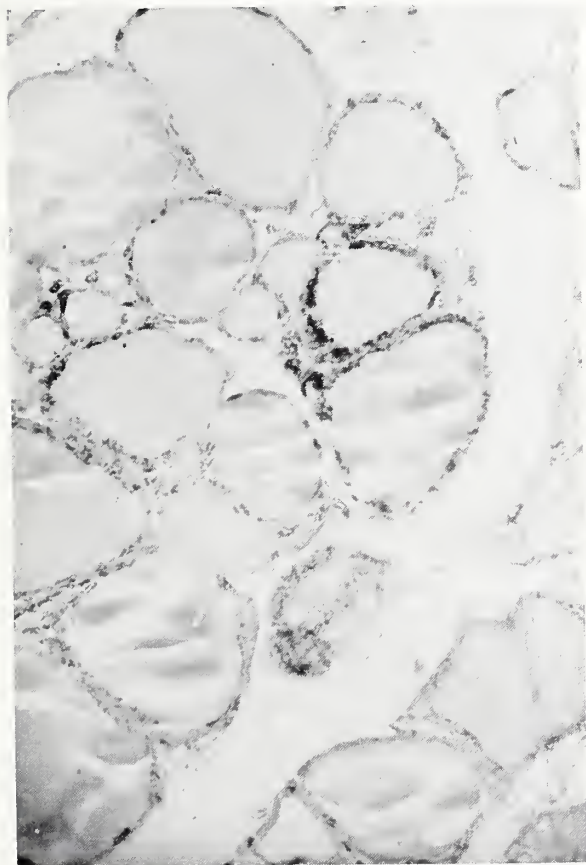


Figure 6. Photomicrograph of Perle stain of the thyroid demonstrating deposits of iron within tall epithelial cells and lack of iron in the flattened epithelial cells.

Dr. Bolinger: Do your findings suggest Laennec's cirrhosis?

Dr. Caulfield: No, they do not. They are most compatible with postnecrotic scarring.

Dr. Bolinger: What were the findings in the brain?

Dr. Caulfield: The findings in the brain were consistent with ammonia intoxication.

Dr. Bolinger: How do you explain the iron absorption?

Dr. Caulfield: This can best be explained on the basis of the high acid in the stomach which provided iron from the hemoglobin in a ferrous state so it could be rapidly absorbed in large quantities.

Dr. Bolinger: There are several significant features about this case. The patient walked into the hospital with a fairly well controlled ulcer. His ulcer management was interrupted by his x-ray studies. He developed bleeding and a typical picture of portal-caval encephalopathy. Finally, his central nervous system manifestations were probably aggravated by the loss of potassium and administration of substances which produced alkalosis.

### Pathological Anatomical Diagnosis

#### Primary

Chronic, penetrating, peptic ulcer of the duodenum.

Postnecrotic cirrhosis of the liver; chronic passive congestion of the spleen.

Focal acute centrallobular necrosis of the liver.

Hemosiderosis of the liver, spleen, pancreas, thyroid, pituitary, mesenteric lymph nodes, and stomach.

Erythroid and myeloid hyperplasia of sternal marrow.

Varicosities of the lower esophagus.

Gynecomastia.

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### Kansan to A.M.A. News

Jim Reed, formerly of Topeka, began new duties as editor of the *A.M.A. News* in Chicago early this month. The 16-page newspaper, a new project of the American Medical Association, will be published every two weeks and will feature nonscientific news of special interest to the medical profession.

In Topeka Mr. Reed was executive editor of the *Topeka Daily Capital*.



# Aspirin Poisoning in Children

## *A Review of the Literature*

RACHEL A. DRIVER, M.D., *Kansas City*

From ancient times naturally occurring salicylates found in the bark, leaves, and fruit of many plants and trees were given a variety of therapeutic uses, ranging from use in childbirth to the removal of corns.<sup>1</sup> Hippocrates, Celsus, and Galen employed the juice and bark of willow trees for medicinal purposes. It was not until 1763 that the use of willow bark for antipyresis was mentioned by the Rev. Edward Stone. Following this report, willow bark was frequently used both as an antipyretic and as an analgesic.

In an attempt to determine the chemical nature of the active ingredient in willow bark, White (1798) discovered the color reaction with iron salts which is still used in the determination of salicylates.<sup>1</sup> In 1874 synthetic salicylic acid became available, the sodium salt being used widely in the treatment of rheumatic fever. Acetylsalicylic acid was first prepared in 1853 but had no therapeutic application until introduced into medical practice in 1899 by Wohlge-mut and by Dreser.<sup>1,2</sup> Initially it was used largely in treatment of rheumatic diseases, but its greater use has since become that of relief of pain.

Acetylsalicylic acid is probably the most widely used drug today. In 1951 we in the United States spent \$135 million for aspirin and analgesics.<sup>3</sup> Over nine million pounds of aspirin alone are consumed yearly in the United States.<sup>2</sup> Because of its ready availability and widespread use, there is a tendency to disregard any potential toxic effects which aspirin might possess, and it is not surprising that toxic reactions are encountered. Most of these are fortunately mild and inconsequential, but death can result.

Children are particularly prone to intoxication from relatively small doses. Aspirin is widely used in pediatrics for antipyresis, analgesia, and the treatment of rheumatic fever, sometimes in high dosages and over prolonged periods of time. There is also the problem of the accidental ingestion of single large amounts.

Therefore, through this study, we shall attempt

to come to a clearer understanding of the drug itself, the problem of toxicity, its clinical manifestations, pathologic physiology, and management with the hope that increased knowledge and awareness will lead to wiser use.

### **The Problem**

The true incidence of aspirin intoxication is not known. Gross and Greenberg,<sup>1</sup> after an exhaustive study in 1948, observed that reports of poisoning, especially non-fatal cases, were surprisingly uncommon in view of the wide consumption of the drug. However, some inferences can be drawn from available sources.

United States Census Bureau reports indicate that the average death rate from salicylates is about 0.350 per million total population per year and accounts for about 4 per cent of all fatal poisonings in all age groups.<sup>4</sup> Bain<sup>3</sup> made a study of deaths due to accidental poisoning in young children. She reports the death rate from accidental poisoning of all types in children 1 to 5 years of age in the United States for the period 1940 to 1950 as 3.6 per 100,000 population and 1.8 per 100,000 population in the group under 1 year. Thirty-three per cent of these deaths were due to drugs, 41 per cent of which were due to salicylates. These mortality reports give no accurate clue to morbidity. From hospital experience, where fatality is the exception rather than the rule in patients treated for aspirin poisoning, one can certainly conclude that the incidence is considerably higher than the average medical practitioner might suspect.

The causes of aspirin poisoning vary with age. Hoffman<sup>5</sup> states that in the 5 or 6 plus cases treated per year in Cook County Hospital, three types of patients are seen: the older or adult age group who attempt suicide with a single large dose, small children who eat a large quantity as candy, and children who are given an overdosage of aspirin medication.

Riley and Worley<sup>6</sup> studied a group of 42 patients with salicylate intoxication at the Vanderbilt University Hospital over the 10-year period 1945 to 1955. They found that 13 cases were due to accidental ingestion and 29 followed aspirin therapy for some concomitant disease (23 febrile illnesses).

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This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Driver is now serving her internship at the University of Kansas Medical Center, Kansas City.



TABLE I  
CAUSES OF ASPIRIN POISONING, 1951-1956

	1951	1952	1953	1954	1955	1956	Totals
Total Cases	2	4	5	5	5	5	26
A. Accidental	1	4	5	5	4	2	21
B. Therapeutic	0	0	0	0	0	3	3
C. Suicidal	1	0	0	0	1	0	2

In the period 1951 to 1956, 26 patients with aspirin poisoning were admitted to the University of Kansas Medical Center. As revealed in Table I, this group showed a preponderance of intoxication from accidental ingestion of single large quantities of aspirin.

Twenty-four of the 26 cases studied were in children, the two adult cases resulting from attempted suicide. The age distribution shown in Table II is similar to that reported by Riley and Worley.<sup>6</sup> They found that most accidental cases occur in the 2- to 4-year age group. In their series, therapeutic intoxication was seen chiefly in infants under 1 year of age (16), while the group in Table II showed a more even spread.

TABLE II  
AGE DISTRIBUTION OF ACCIDENTAL AND  
THERAPEUTIC ASPIRIN INTOXICATION,  
1951-1956

	Below 6 mo.	6 mo.- 1 yr.	1-2 yrs.	2-3 yrs.	3-4 yrs.	4-5 yrs.
Accidental	0	0	4	13	3	1
Therapeutic	1*	0	1	0	0	1

\* The only fatality in the series.

It is felt that the danger of accidental intoxication has increased since the advent of candy aspirin. Candy medications were originally developed in 1912 by Dr. Bernard Fantus to increase the palatability of medicine for children. He himself felt that the danger of children consuming an excessive amount of medicine because of its sweet flavor was great enough that he advised prescribing no greater quantity than a child could tolerate should he take it in a single dose. As usage of candy medications increased, medical literature began to contain more and more reports of illness and death in children from drug overdosage. Some authors contended that children are likely to consume almost anything they find available, regard-

less of its flavor. Therefore, the Council on Pharmacy and Chemistry of the American Medical Association<sup>9</sup> reviewed the accident statistics, sales records, and population changes over a 20-year period, 1932 to 1952, in order to determine the influence of flavored aspirin on accidental poisoning in children.

Candy aspirin has been available as a prescription drug since 1932, but only since 1948 has it been distributed over-the-counter. It is sold chiefly through drug stores where it now constitutes approximately 12 per cent of all aspirin sales. In the pre-war period, when fairly small amounts of candy aspirin were available, approximately 20 per cent of all aspirin fatalities occurred in pre-school-age children. In 1951, 80 per cent of all aspirin deaths occurred in children under 5 years of age. However, during the same period, aspirin production nearly doubled, while the pre-school population increased 70 per cent.

An evaluation of the influence of candy medication on non-fatal aspirin poisoning is more difficult. Data from the Chicago Poisoning Center indicates that, of the first 500 cases reported to the center, 84 were due to aspirin. Flavored "baby" aspirin was directly cited in 73 of the 84 cases—14.5 per cent of the total cases received by the center and 87 per cent of the cases associated with aspirin ingestion.

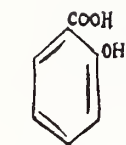
While this evidence is not conclusive, it is suggestive that flavored aspirin has contributed to an increase in accidental poisoning out of proportion to its availability. Surely the undisputed usefulness of flavored aspirin in pediatrics should not lead to indiscriminate and careless usage.

### Pharmacology

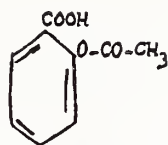
A review of certain basic pharmacologic principles is helpful in the understanding and proper management of aspirin intoxication.

The efficacy of salicylates seems to depend in part on the amount of salicylate anion liberated in the body. Salicylic acid per se is too irritating for systemic use so certain derivatives, among which are salicylate esters of organic acids, have been developed. Aspirin is an ester of acetic acid, where the carboxyl group of

salicylic acid is retained and substitution is made in the OH group.



Salicylic Acid



Acetylsalicylic Acid  
(Aspirin)

The therapeutic potency of aspirin is about 50 per cent greater than that of sodium salicylate, as is also its toxicity.<sup>2</sup>

Absorption of aspirin takes place rapidly following ingestion, traces of salicylate being detectable in the urine within 10 to 15 minutes after therapeutic doses. The main site of absorption appears to be the small intestine, although it does take place in a less complete and predictable manner in the large intestine and urinary bladder. Sodium bicarbonate is said to hasten absorption.<sup>10</sup> It has been suggested that this is due to the fact that the bicarbonate causes a quicker emptying of the gastric contents into the small intestine where the salicylate is more rapidly absorbed.<sup>2</sup>

Gross and Greenberg<sup>1</sup> concluded that a preponderance of the data and opinions in literature they reviewed indicated that aspirin was hydrolyzed to some extent in the gastrointestinal tract, chiefly in the small intestine. There is not complete agreement as to the extent of hydrolysis prior to absorption, some writers<sup>5</sup> stating that aspirin is not completely hydrolyzed in the intestine. Others<sup>4, 6, 11</sup> feel that the drug is hydrolyzed and then absorbed. It is certain that if any hydrolysis remains to be accomplished, it rapidly occurs following absorption, for after half an hour or so practically all that is in the blood is in the form of salicylate.<sup>5</sup>

Once absorbed, salicylates are rapidly distributed throughout all body tissues and the free salicyl radical undergoes certain metabolic transformations. Most of the salicylate is bound to plasma proteins, leaving only about 25 per cent free to diffuse into the interstitial fluid. Approximately 20 per cent of the absorbed salicylate is destroyed in the body.<sup>12</sup> Of the remaining 80 per cent, "probably a small portion is oxidized to such end products as gentisic acid, while a majority of the remaining portion is detoxified by conversion to more easily excretable forms such as salicylic acid, salicyluric acid, and salicylglycuronides."<sup>6</sup> These metabolic end products likely have little part in producing toxic manifestations but may give false positive tests for urinary sugar (Benedict's test) and ketones (ferric chloride test).

Approximately 70 per cent of salicylate is excreted in the urine, some in the free form but chiefly as

salicylurate and in other chemical combinations. Some is lost in sweat while about 20 per cent is oxidized in tissues.<sup>13</sup> Renal excretion is prompt, beginning 10 to 15 minutes after ingestion, by both filtration and tubular excretion, the latter occurring only when the excreted urine is an alkaline or more so than blood.<sup>12</sup> Excretion is, relatively speaking, quite slow; approximately 50 per cent of a given dose is eliminated in 24 hours, but traces can be found in the urine for 48 hours or longer.<sup>2</sup>

Smith et al.,<sup>11</sup> suggest that after approximately four hours, excretion becomes as rapid as absorption so that in the following four hours the plasma levels do not fall appreciably. Therefore, fairly constant blood levels can be maintained by dosage spaced at four- to six-hour intervals. The percentage of excretion appears to be unrelated to dosage or the volume of urine.<sup>2</sup>

The duration of excretion is dependent on the amount of drug given and the rate at which the body can metabolize and eliminate the salicylate. There is no known renal threshold for the excretion of salicylate, but clearance is markedly affected by the pH of the urine. Renal clearance increases rapidly when the pH is above 7. An increase in pH from 6.0 to 7.7 causes approximately tenfold increase in excretion.<sup>2</sup> At a urinary pH of less than 7.0, the clearance is 10 to 15 cc. per minute. As the pH rises above 7.5, excretion increases sharply and may reach values above 100 cc. per minute.<sup>4</sup>

The administration of sodium bicarbonate raises urinary pH, thus increasing the renal clearance of free salicylate and lowering the plasma level. This rationale has prompted advocating its use in the treatment of intoxication,<sup>10</sup> but the particular acid-base disturbance present at the time should determine the wisdom of this course.

Excretion of salicylates in infants and children is less efficient than in adults due to more immature function of the kidneys and less effective oxidation and detoxification processes. At a dosage of 60 mg., the plasma level in an infant at the end of four hours is about 4 mg. per cent. If a similar dosage is given every four hours, the blood level at the end of 24 hours may be 20 to 24 mg. per cent.<sup>5</sup> At this rate, toxicity would develop in several days. This pyramiding effect in the less mature child must be kept in mind by those caring for children.

Therapeutic as well as toxic effects of aspirin are due to specific action on various organs and functions of the body. These have been extensively studied.

Aspirin has been found to reduce body temperature in febrile patients but rarely produces any such effect in normal individuals. This antipyretic action of salicylate is thought to be mediated through the central nervous system by way of the temperature-

regulating mechanism in the hypothalamus. Normal regulation of body heat requires a balance between heat production and heat loss. The hypothalamic nuclei play a role in regulating peripheral mechanisms concerned with production and loss of heat. In the febrile individual, the "thermostat" appears to be set at a higher level, the balance between heat production and loss remaining intact. Salicylates act to reset this regulating mechanism to normal temperature levels. Heat production is not affected but heat loss is increased by vasodilatation, increased peripheral blood flow, and sweating.<sup>2</sup>

The analgesic action of aspirin appears to be due to central depressant action, but the site is uncertain. The type of pain best relieved by salicylates is that of low intensity, such as headache and muscular aches and pains, rather than that of visceral origin.

In high dosages, aspirin may produce a toxic effect on the central nervous system characterized by stimulation followed by depression which may resemble alcoholic intoxication but without the euphoria.<sup>14</sup> Confusion, high-tone deafness, tinnitus, stupor, and coma may occur. It is thought that the nausea and vomiting which may accompany aspirin intoxication are due more to its action on the vomiting center in the medulla than to gastrointestinal irritation.

Gross and Greenberg<sup>1</sup> concluded from their review of the literature that therapeutic doses of aspirin have no significant effect on the cardiovascular system. High dosages may cause some vasodilatation due to direct effect on the smooth muscle of the blood vessels. Toxic amounts depress the circulation both directly and by central vasomotor paralysis. In those patients given large doses, as for treatment of acute rheumatic fever, there is an increase of about 20 per cent in circulating plasma volume, with, of course, a relative decrease in the hematocrit.<sup>2</sup>

It is generally agreed that salicylates exert a specific stimulatory effect on respiration,<sup>1,2</sup> the mechanism of which is not fully understood. For many years it was felt that the dyspnea seen in salicylate overdosage was secondary to a metabolic acidosis, but studies of pulmonary ventilatory indices have shown the effect to be neurogenic. Doses in the ranges used for rheumatic fever therapy cause a primary hyperventilation which markedly increases respiratory minute volume.

After a total dose of 12 grams of aspirin given orally to normal adults over a nine-hour period, respiratory volume was increased by an average of 4 liters per minute, an increase of about 60 per cent. This hyperventilation usually is not associated with tachypnea unless intoxication is present. With salicylate plasma levels of 35 mg. per cent, one almost always sees hyperventilation, and severe dyspnea occurs when the level approaches 50 mg. per cent.

Dyspnea is also seen in certain hypersensitivity reactions characterized by asthmatic episodes. Lethal doses of salicylates in animals cause central respiratory paralysis secondary to circulatory collapse and anoxia.<sup>2</sup> Quincke in 1882 reviewed the fatal cases of salicylate poisoning which followed its introduction into medicine. He felt that dyspnea was characteristic of intoxication and that it was central in origin because of the autopsy finding of cerebral congestion.<sup>15</sup>

Epigastric distress, nausea, and vomiting are seen in a few sensitive individuals after comparatively small doses of aspirin. These are probably due to local irritating effects. After large doses, gastric symptoms are due more to central action of the drug on the vomiting center.

Damage to the liver occurs in poisoning by large doses of aspirin; large doses have a choleric action, apparently increasing bile flow due to direct action on liver cells with no damage to the liver parenchyma.<sup>2</sup>

Normal renal function is generally unaltered by small doses of aspirin. Large doses may produce renal impairment with albuminuria, red blood cells, and casts, which disappears without residual damage when the medication is discontinued. In amounts great enough to produce poisoning, nephritis may result.<sup>1</sup>

Large doses of salicylates are thought to alter cellular metabolism. The normal function of the liver in carbohydrate metabolism may be changed. This may explain the presence of certain reducing substances in the urine which are distinct from glucose. In rats, liver glycogen disappeared almost completely four to six hours after salicylate ingestion.<sup>16</sup> Salicylates also increase the urinary excretion of urates, often by as much as 100 per cent, by inhibiting tubular resorption and thereby increasing its renal clearance. This action is markedly dependent on dosage.<sup>2</sup>

Salicylates in sufficiently large doses are known to exercise a thrombinopenic effect. An alteration in the prothrombin time is rarely seen except with large or repeated doses as in the treatment of rheumatic fever. It is felt that aspirin therapy also produces a capillary fragility, which in a given person is proportional to the dosage taken.<sup>17</sup> Frick<sup>18</sup> feels that the development of increased capillary fragility may be in part an individual sensitivity because of its relative infrequency, and especially when it occurs with a small aspirin intake. A blocking of the utilization of Vitamin K is thought to be a factor in prothrombinemia as the administration of Vitamin K overcomes the effect of the aspirin.

The usefulness of aspirin in rheumatic disease is due to its ability to reduce pain, immobility, swelling, and inflammation. This response is so specific in acute rheumatic fever that it has been used as a therapeutic



test in differential diagnosis. The course and complications of the disease remain unaltered. The anti-inflammatory action of aspirin, while "ACTH-like," may very well be unrelated to stimulation of the anterior pituitary-adrenocortical system since it also occurs in hypophysectomized and adrenalectomized animals.<sup>2</sup> Salicylates are also thought to increase the excretion of Vitamin C.

There is not clear-cut information in the literature with regard to toxic or lethal dosages of aspirin. About the most definite statement is that there is wide variation in toxicity in man. The toxicity of salicylates is probably in direct relation to the rate of rise of salicylate concentration in the plasma as well as the actual attained concentration.<sup>6</sup> Salicylate plasma concentrations depend both on the total drug intake and the rate of urinary excretion. Obviously a diminished renal output with moderate intake would have the same toxic potential as a much larger intake with good renal function.

Although the proper and safe dosage of aspirin is controversial, an inspection of the findings of various investigators may be of benefit. Farber et al.<sup>19</sup> studied the effects of so-called therapeutic doses of aspirin on 10 normal adults by giving hourly doses of 1.3 gm. orally for a total of 12 gm. Respiratory volume and rate, blood pressure, pulse rate, temperature, plasma CO<sub>2</sub>, and serum pH and base bicarbonate were determined together with serum salicylate levels, at two-hour intervals for 16 hours and also at 28 hours. They found that in all subjects there was an increase in respiratory volume and serum pH and decreased CO<sub>2</sub> and base bicarbonate with maximum displacement of the acid-base balance two to four hours after maximum salicylate blood levels (average 39 mg. per cent) were reached. There was no significant alteration in respiratory and pulse rate, temperature, or blood pressure.

A study of salicylate tolerance in children was made by Dubow and Solomon.<sup>20</sup> Twenty patients were given varying doses of salicylate. Daily dosage 0.15 gm. (2.5 gr.) per Kg. resulted in intoxication in a majority of patients between 4 and 11 years of age while a dosage of 0.10 gm. failed to achieve what was considered an optimum therapeutic salicylate level.

Erlanson and Burke<sup>21</sup> state that the usual recommended pediatric dosage of aspirin is 0.065 gm. per year of age administered as often as every four hours. Toxic effects were noted by them after ingestion of 60 mg. per pound (150 mg. per Kg.) of body weight. Barnett et al.<sup>22</sup> give the equivalent of the above dosage schedule of 60 mg. per year as approximately 40 mg. per Kg. per 24 hours in six divided doses. In their study intoxication resulted from two to four times this recommended dosage. One must bear in

mind the age and physical state of the children involved in these studies and, since these cannot be equated, perhaps contradictions in results are more apparent than real.

Erganian et al.<sup>16</sup> found that salicyl compounds when given in dosages from 60 mg. per Kg. per 24 hours in six divided doses (approximately 30 mg. per pound) tend to accumulate in significant amounts as shown by determination of plasma levels. They further felt that studies made in well children could not be accurately compared with the ability of an already ill child to tolerate a given dosage. At the time of these authors' publication, the highest plasma salicylate level reported in a child who lived was 68.5 mg per cent. Erlanson and Burke<sup>21</sup> have subsequently reported a level of 73 mg. per cent. In the series from the University of Kansas Medical Center, a blood salicylate level of 67 mg. per cent was obtained on the day following admission on a one-year-old patient who subsequently improved rapidly.

### Intoxication

The clinical manifestations of aspirin poisoning vary in different age groups. The warning symptoms of early salicylism which are often seen in older children and adults, such as tinnitus, vertigo, headache, and deafness, may not be noted in infants and children. Their recognition at best is correlated with the ability of self-expression, and therefore the symptoms are likely to be overlooked in the very young.

Various authors<sup>7, 10, 16, 20, 22</sup> have not agreed entirely as to which presenting symptom is seen most frequently. However, in general, it is agreed that hyperpnea is the outstanding clinical manifestation, while anorexia, nausea and vomiting, and lethargy are prominent findings. Other symptoms seen on occasion are tinnitus, dizziness, irritability, stupor, fever, generalized convulsions, pallor, cyanosis, abdominal pain, epistaxis or other hemorrhagic phenomena, and dehydration.

The chief presenting symptomatology in patients from this hospital were vomiting, hyperpnea, and lethargy, in the order of their frequency. Vomiting was the one constant finding. Petechiae, pallor, convulsions, and coma have been seen much less frequently.

Although the foregoing findings may appear to differ somewhat, there is no real discrepancy. As the severity of the signs and symptoms generally parallels the salicylate blood level,<sup>4</sup> it is to be expected that the clinical manifestations in any given case will be in accord with the severity of the intoxication and that the presenting symptoms will vary accordingly. Vomiting is thought to usually precede hyperpnea.<sup>6</sup> Approximately 50 per cent of all individuals with a blood level of more than 30 mg. per cent experience

nausea and vomiting.<sup>2</sup> Winters<sup>4</sup> feels that the presence of hyperpnea is an indication of serious intoxication, although less conspicuous respirations do not necessarily mean that the poisoning is mild. A progression of symptoms has been noted by Wallace;<sup>12</sup> as the salicylate blood level rises there is sweating, nausea, vomiting, diarrhea, and delirium or coma. Hyperpnea, which marks the beginning of the end stage of intoxication, may be the first sign noted in children. The phase of dyspnea is followed by respiratory failure, circulatory collapse, convulsions, and death.

In addition to the gastrointestinal and central nervous system effects, hemorrhagic phenomena (petechiae, epistaxis, bleeding gums, etc.) are sometimes noted. A diffuse toxic encephalopathy has also been noted.

Apart from the toxic manifestations of aspirin overdosage, there is the occasional hypersensitivity reaction to a small dose of the medication. The incidence of sensitivity is quite low, approximately one person in 500, and it often occurs where there is a history of allergy. Two-thirds of sensitive individuals show an asthmatic type of reaction, other types being angioneurotic edema, urticaria, or anaphylaxis.

With an adequate history, the diagnosis of aspirin intoxication is fairly straight-forward. However, in the absence of such a history, the presenting symptomatology may be such that aspirin as an etiology is overlooked because of its mimicry of other toxic states.<sup>23</sup>

Cerebral symptoms may range from headache and vertigo to stupor, coma, and death. Therefore, in any given case the diagnosis of primary central nervous system disease or psychosis may be assumed. A diagnosis of nephritis may be made when pathological changes in renal function (albuminuria, red blood cells, and casts) occur secondary to aspirin intoxication. The petechiae sometimes seen may simulate some blood dyscrasias. Difficult respirations, especially if accompanied by fever and/or other compatible physical findings, may simulate an acute infectious disease.

A seriously ill child with hyperpnea, positive tests for sugar and acetone in the urine, decreased blood  $\text{CO}_2$ , and increased blood sugar might easily be mistakenly diagnosed as having diabetic acidosis. Quincke noted the similarity of the dyspnea seen in salicylate poisoning to that seen in diabetic acidosis.<sup>23</sup> If an occasional erroneous diagnosis of diabetes is to be avoided, the possibility of salicylate intoxication must be kept in mind.<sup>6</sup>

Arena<sup>7</sup> states that the possibility of poisoning should be considered in any puzzling situation where the differential diagnosis presents a difficult problem. Any infant, Wallace feels, who presents the combina-

tion of fever, dehydration, hyperpnea and lethargy should be suspected of having salicylism.<sup>12</sup>

In view of its protean clinical manifestations, a diagnosis of aspirin poisoning can be confirmed only on the basis of the clinical picture coupled with high plasma concentrations of salicylate. High plasma concentration in addition to laboratory findings of acid-base alterations is indicative of salicylate poisoning. It is important to determine the precise nature of the metabolic disturbance, and this is possible only by determining the  $\text{CO}_2$  content and pH of the blood.

It is evident that most of the signs and symptoms of aspirin poisoning result from the toxic effect of the salicyl radical on the brain, kidneys, and liver with concomitant changes in the electrolyte balance.

The changes in acid-base balance which attend aspirin intoxication are of especial interest in pediatrics since, in infants and children, they are the most extreme and most confusing aspect of the problem. The nature of this acid-base alteration has not been clearly understood as the biochemical changes present when the patient is first seen may represent one phase in a progression of changes rather than the total picture. Also a failure to do concomitant blood pH and  $\text{CO}_2$  determinations and an attempt to compare experience with animals and adults with children, sick or well, further confuses the picture. A complete study of the acid-base disturbance found in salicylate intoxication was made by Singer,<sup>24</sup> who has delineated the mixed nature of the disturbance. There now seems to be fairly uniform agreement<sup>4, 6, 12, 13, 16, 20, 22, 24, 25, 26</sup> as to the pathologic physiology of aspirin poisoning.

Salicylate exerts a primary stimulating effect on the respiratory center. Doolan et al.<sup>25</sup> feel that the decreased  $\text{CO}_2$  and increased pH seen early plus the histological demonstration of central nervous system damage is corroborating evidence that the hyperpnea caused by salicylate is central in origin, although there is general uncertainty as to the mechanism. The respiratory center stimulation is initially one of depth rather than rate. The degree of stimulation is thought to be correlated with the level of "free" salicylate as opposed to bound, in the serum and possibly also with the period of drug administration.<sup>24</sup> Hyperventilation develops which results in a loss of  $\text{CO}_2$  from the alveoli and then from the blood.

The pH of the blood is maintained at the optimum physiologic level of 7.41 by the blood bicarbonate buffer system in large part. The concentration of  $\text{B.HCO}_3$  and  $\text{H.HCO}_3$  is normally maintained in a ratio of 20:1. The immediate defense of this ratio is principally a function of the control of  $\text{H.HCO}_3$  by respiration. Less rapid acting renal mechanisms are chiefly responsible for the  $\text{B.HCO}_3$  level.



The primary hyperventilation results in a "blowing off" of  $\text{CO}_2$  with a reduction in the plasma  $\text{H.HCO}_3$  and a relative excess of  $\text{B.HCO}_3$ . This produces an increase in the normal 20:1 ratio, and the blood pH rises. A patient seen at this stage will have a moderate decrease in blood  $\text{CO}_2$  content and a more marked increase in blood pH despite the clinical appearance of acidosis. This is the stage of uncompensated respiratory alkalosis.

The body seeks to remedy this situation by mechanisms aimed at ratio-repair. These compensatory mechanisms minimize but never completely correct the pH changes. The only means of compensating for  $\text{CO}_2$  deficit is the concomitant decrease in  $\text{B.HCO}_3$ —a renal mechanism. This can be done through the retention of chloride which would decrease the residual base available for combination with  $\text{HCO}_3$ —and therefore the  $\text{B.HCO}_3$ .<sup>27</sup> This is accomplished in the presence of normal renal function; at this point the urine may be alkaline. However, salt depletion or altered renal function makes this quite variable. A second compensatory mechanism is the accelerated transfer of hydrogen ions to the extracellular fluid from the cells.<sup>4</sup>

In adults and older children with mild to moderate degrees of poisoning, the acid-base disturbance does not develop beyond the stage of respiratory alkalosis, the diagnosis of which is often missed because a determination of the blood pH was not done.<sup>13</sup> After the drug is withdrawn, there is a gradual return to normal over as long as three days.<sup>24</sup>

However, in infants and old patients with severe toxicity, the respiratory alkalosis is complicated by the appearance of a primary decrease in buffer base through the accumulation of fixed acids. This second and more severe phase is a mixed disturbance, a combination of primary  $\text{CO}_2$  and primary buffer base deficit. At this point the  $\text{CO}_2$  content is markedly decreased and the pH drops first to normal, then to a level below 7.4, but seldom below 7.2.<sup>24</sup>

There are again attempts at compensation for the pH drop. The respiratory center is further stimulated by the increasing acidity of the blood, and a secondary hyperpnea develops in an effort to reduce the  $\text{H.HCO}_3$  content of the blood. As this continues, respiration begins to fail because of fatigue and lethargy. With the depletion of base and increasing acidosis on the possible basis of starvation and increased metabolism, continuing hyperventilation is imperative in an attempt to prevent a relative excess of  $\text{H.HCO}_3$ .

If, at this point, when hyperventilation is a physiologic necessity, the respiratory center becomes poisoned or the patient lags because of inability to keep up with the rapid pace, uncompensated metabolic acidosis ensues. On the average, respiratory efforts seem only 50 per cent efficient as a compensatory mechanism.<sup>16</sup>

The exact metabolic alterations which are responsible for the change in the acid-base picture are not clear. It is likely partially due to dietary and metabolic acidosis and is made even more severe by the previous depletion of fixed base.<sup>26</sup> Singer<sup>24</sup> feels that the primary metabolic acidosis cannot be due to salicylate per se, the usual kind of ketosis or renal failure with retention of sulfate and phosphate, but probably involves a change in intermediary metabolism at the cellular level with the accumulation of organic acid metabolites, including acids chemically distinct from ketone bodies. On the basis of some of his experimental data, Winters<sup>4</sup> hypothesizes that the metabolic acidosis of salicylism represents an exaggeration of the normal reaction to starvation due to inadequate glycogen storage in the liver. Erganian et al.<sup>16</sup> believe also that the decreased intake of food, fluids as well as nourishing substances, is a key factor in production of metabolic acidosis in infants, and that starvation from anorexia and vomiting may be responsible for the apparent ketosis.

There is a correlation between the age of the patient and the type of metabolic disturbance seen in salicylate intoxication. In adults and older children, the blood pH was generally on the alkaline side of normal with a lowering of the buffer base by only a few milliequivalents per liter. Infants and young children below the age of 6 show a much more marked reduction in buffer base with the pH usually on the acid side.<sup>24</sup> Wallace<sup>12</sup> estimates that about one-half of patients with hyperpnea when first seen are in the stage of respiratory alkalosis. The time required for the transition to a mixed disturbance with its  $\text{CO}_2$  and buffer base deficit is variable (one to eight hours) but generally occurs more rapidly and to a more marked degree in infants and young children.<sup>6</sup> Patients in the pediatric age range vary considerably in their susceptibility to salicylates. Erganian et al.<sup>16</sup> found that all 11 of their cases of aspirin poisoning showed a metabolic acidosis with a lowered pH and serum  $\text{CO}_2$  content at the time of hospitalization. Younger patients showed a more pronounced shift toward acidosis than older ones.

There is no clinical means of distinguishing between the two types of metabolic disturbance, yet such a differentiation is essential. The urine pH is not a wholly reliable finding; an alkaline urine indicates alkalosis, but an acid urine may mean either acidosis or alkalosis with salt depletion.<sup>4</sup> Erganian et al.<sup>16</sup> feel that the most significant data with regard to acid-base imbalance are those obtained from the urine pH, blood pH, and  $\text{CO}_2$  content.

### Treatment

The management of salicylate poisoning is largely symptomatic and depends on the stage of intoxication present when the patient is first seen. An ob-



vious medical emergency may be presented or deceptively mild symptomatology may be seen. Therefore, any treatment plan, to be rational, needs to be individualized.

Mild intoxications usually respond readily to the withdrawal of the drug. Wallace's experience has been that hospitalization and observation of any child who has accidentally ingested aspirin is indicated even though he may appear asymptomatic at the time.<sup>12</sup> This practice is also followed at this hospital. If there is no vomiting, oral fluids should be forced in order to maintain a high urine volume and expedite renal excretion.

If the patient is seen shortly after ingestion of a large amount of aspirin, gastric lavage should be done using tap water in which aspirin is practically insoluble. Induced emesis may also be an effective method of removing unabsorbed salicylate from the stomach. If hyperpnea is already present, gastric lavage is of little benefit for absorption has already occurred.

As it is entirely impossible to judge clinically where the patient is exactly with regard to metabolic balance, certain laboratory studies should be determined immediately and at four- to six-hour intervals following treatment if the patient is doing well.<sup>16</sup> These not only aid in diagnosis but provide a base line for evaluation of therapy. Urine and blood pH, plasma  $\text{CO}_2$  content and salicylate level and prothrombin time should be done. Chloride determinations may be of some benefit.

Vitamin K and Vitamin C should be given routinely. It is said that 1 mg. of Vitamin K will counteract the effects of 1 gm. of salicylate.<sup>13</sup>

Until laboratory values are available, parenteral fluids in sufficient quantity to equal maintenance and estimated deficit requirements should be given. A 5 to 10 per cent glucose solution provides carbohydrate needed to minimize or prevent ketosis as well as fluid. Maintenance potassium requirements should also be provided.

If the laboratory studies indicate the presence of alkalosis, adequate amounts of sodium and water must be provided to aid in renal compensation, avoiding salt depletion. Any tetany noted can be treated with calcium or rebreathing. There has been some thought that the administration of  $\text{NaHCO}_3$  to increase the rate of urinary excretion of salicylate by increasing the urinary pH would be helpful. It is generally felt that the advantages have been of too little clinical significance to warrant risking a possible accentuation of an already present alkalosis.

A transition to an acidotic state should be anticipated, the time being variable from one to eight hours, appearing inversely proportional to the amount of drug taken.<sup>12</sup> If a blood pH determination cannot be obtained, it is advisable to provide adequate

amounts of glucose and water until six to eight hours have passed or until the  $\text{CO}_2$  concentration falls to 7 millimoles per liter since, if hyperpnea is still present, one can be quite certain acidosis has occurred.<sup>6,12</sup>

In the presence of acidosis, parenteral alkali is indicated, 6 Molar Na lactate or 5 per cent  $\text{NaHCO}_3$  being satisfactory. Singer<sup>24</sup> warns that care must be taken to regulate the dosage so that it can be stopped before a shift back into serious alkalosis occurs. He states that every case of severe intoxication passes through a phase of low  $\text{CO}_2$  and alkaline pH while going into and coming out of a phase of marked reduction of buffer base. In view of this, Winters<sup>4</sup> has outlined a flexible dosage schedule. "Dosage should attempt to raise the bicarbonate of the blood not to normal, but rather by perhaps only 4 to 8 milliequivalents per liter at first. The amount of lactate or bicarbonate necessary to do this cannot be calculated or predicted. It is probably of the order of 1.5 to 2.5 milliequivalents per Kg. Further doses should be judged by the clinical condition of the patient, together with the pH and  $\text{CO}_2$  content of the blood."

The total amount of fluid given should be watched, especially if dehydration is not severe, as aspirin itself tends to increase the circulating plasma volume.<sup>2</sup>

In shock-like states, blood or plasma transfusions may be indicated. Whole blood may also be needed if hemorrhagic phenomena are prominent. Exchange transfusions have been considered<sup>6</sup> as a means of reducing plasma salicylate concentration. This would seem to hold some promise in certain cases of early poisoning with very high plasma salicylate levels.

Lumbar puncture may be effective in the relief of convulsions. Sedation in the form of morphine or barbiturates, either as a means of quieting cerebral irritability or reducing hyperpnea, is distinctly contraindicated because of a synergistic effect with salicylates, deep coma sometimes ensuing.

Doolan et al.<sup>25</sup> advocate the use of hemodialysis in the treatment of severe intoxication. They found that salicylate was cleared more rapidly by the artificial kidney than by a normal kidney. In the presence of high salicylate levels, renal function is almost certain to be impaired. It is felt that hemodialysis should be undertaken as early as possible as the total recovery is greatly increased if the drug has not become "fixed."

It is evident that the wisest course in therapy is that of supporting normal physiologic mechanisms and preventing or minimizing the catabolic and metabolic defects which occur.

### Comment

That a problem exists relative to aspirin poisoning is evident. It is equally evident that aspirin is a valuable and useful drug in pediatrics. Therefore it

seems important that a true familiarity with the drug be cultivated in order that it might be used wisely and well.

Poisoning in children occurs from accidental ingestion of quantities of aspirin and also because of inadvertent overdosage by a physician. The Food and Drug Administration in 1955 became so concerned about the accidental aspects of poisoning that they issued a directive requiring manufacturers to label aspirin "conspicuously," warning that the medication be kept out of the reach of children. Also, in place of suggested dosage for young children, the packages must state "For children under three years of age, consult your physician."<sup>27</sup>

Even with greater precautionary measures taken by manufacturers, parents are often not in a position to know that they are dealing with a potentially dangerous drug. Therefore, physicians have an opportunity to practice good preventive pediatrics by warning parents never to self-treat a baby and about the necessity of keeping the household bottle of aspirin tablets out of the reach of young children. Children should also be made to understand that flavored aspirin, while pleasant to take when they are ill, is definitely not candy and possesses the power to make them ill if it is eaten indiscriminately.

## Summary

In this study we have surveyed the basic pharmacology, clinical manifestations, pathologic physiology, and treatment of intoxication. The problem of aspirin poisoning was also approached on the basis of incidence, cause, and relation to the advent of candy aspirin. This was done in the hope that an increased knowledge of this useful drug and its potentialities might lead to more efficient function both in therapy and prevention.

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In 1956, there were 2,368,000 Americans injured in traffic accidents.

# Annual Meeting

## Officers Elected, Reports Given, Specialty Group Sessions

The 99th annual meeting of the Kansas Medical Society, held at Kansas City, May 4-7, was attended by 685 members of the Society. Also registered for the session or affiliate meetings were 423 guests (interns, residents, medical students), 196 members of the Kansas Medical Assistants' Society, 189 members of the Woman's Auxiliary to the Kansas Medical Society, and 203 members of the Kansas Society of Medical Technologists.

The program announced in the April issue of the JOURNAL was presented. The annual banquet was highlighted by the administration of the oath of office as president for 1958-1959 to Dr. Thomas P. Butcher, Emporia, with Dr. Barrett A. Nelson, Manhattan, presiding. Entertainment was furnished by Herb Shriner, humorist, after which a dance was held.

Plaques were presented at the banquet to winners of awards for scientific exhibits. First prize went to Doctors D. Cramer Reed, William H. Browning, and Harold F. O'Donnell, Wichita, for an exhibit on "Male Infertility: Diagnosis and Treatment." The second award went to a group from the Wichita Clinic and St. Francis Hospital, Wichita, for a display on "Extra Corporeal Circulation." The group included: Doctors John G. Shellito, Aydin Aytac, Robert H. Robinson, Ben H. Buck, Jr., E. P. Carreau, and A. O. Tetzlaff. Dr. J. W. Graves, Wichita, won the third award for his exhibit on "The Use of Synthetic Blood Vessels in Arterial and Aortic Resection." An exhibit on a surgical appliance, prepared by Dr. Cecil C. Hunnicutt, Sabetha, was given honorable mention.

The first meeting of the House of Delegates followed a breakfast at the National Guard Armory on Monday morning, May 5. The second session was held on Wednesday, May 7. Minutes of the meetings will be published in the July issue of the JOURNAL.

### Officers for 1957-1958

- President ..... Dr. Thomas P. Butcher, Emporia
- President-Elect ..... Dr. Glenn R. Peters, Kansas City
- Immediate Past President ..... Dr. Barrett A. Nelson, Manhattan
- First Vice-President .. Dr. Frederick E. Wrightman, Sabetha
- Second Vice-President ..... Dr. Harold M. Glover, Newton
- Constitutional Secretary ..... Dr. George E. Burket, Jr., Kingman
- Treasurer ..... Dr. John L. Lattimore, Topeka
- A.M.A. Delegate, 1958-1959 . Dr. George F. Gsell, Wichita
- A.M.A. Alternate, 1958-1959 .... Dr. Cyril V. Black, Pratt

- A.M.A. Delegate, 1959-1960 .. Dr. Lucien R. Pyle, Topeka
- A.M.A. Alternate, 1959-1960 ..... Dr. Norton L. Francis, Wichita
- Chairman of Editorial Board . Dr. Orville R. Clark, Topeka

### Councilors for 1958-1959

- 1. Dr. Emerson Yoder, Denton, term expiring in 1960
- 2. Dr. Joseph W. Manley, Kansas City, 1961
- 3. Dr. George R. Maser, Mission, 1960
- 4. Dr. Dick B. McKee, Pittsburg, 1961
- 5. Dr. Ralph G. Ball, Manhattan, 1960
- 6. Dr. James A. McClure, Topeka, 1959
- 7. Dr. Edward J. Ryan, Emporia, 1959
- 8. Dr. James E. Hill, Arkansas City, 1960
- 9. Dr. L. S. Nelson, Jr., Salina, 1960
- 10. Dr. Harold M. Glover, Newton, 1959
- 11. Dr. William J. Reals, Wichita, 1961
- 12. Dr. Albert C. Hatcher, Wellington, 1959
- 13. Dr. H. S. O'Donnell, Ellsworth, 1961
- 14. Dr. Justin A. Blount, Larned, 1961
- 15. Dr. Lyle G. Glenn, Protection, 1961
- 16. Dr. Edward F. Steichen, Lenora, 1959
- 17. Dr. H. Preston Palmer, Scott City, 1960.

### Nominating Committee

Five past presidents of the Society were chosen by the House of Delegates to serve as Nominating Committee for next year, to select candidates for the 1959 election. Elected were: Dr. L. S. Nelson, Salina, chairman; Dr. Conrad M. Barnes, Seneca; Dr. Clyde W. Miller, Wichita; Dr. Haddon Peck, St. Francis, and Dr. Henry N. Tihen, Wichita.

### Editorial Board

Dr. Orville R. Clark, chairman of the Editorial Board and editor of the JOURNAL, was reappointed to both positions at a meeting of the Council held in Kansas City on May 7. Dr. Richard Greer was also reappointed to a three-year term on the Board. Serving with them are Dr. David E. Gray, whose term will expire in 1960, Dr. Dwight Lawson, also serving until 1960, and Dr. John A. Segerson, whose term will expire in 1959. All are Topeka physicians.

### E.E.N.T. Section

Elected to serve as officers of the E.E.N.T. Section of the Kansas Medical Society for the coming year, at a meeting held in Kansas City on May 5, are: president, Dr. Victor R. Moorman, Hutchinson; vice-president, Dr. Glen Floyd, Winfield, and secretary, Dr. James E. Bresette, Kansas City.



## Blue Shield

Dr. Edward J. Ryan, Emporia, was elected president of Kansas Blue Shield at a meeting held at the Town House, Kansas City, on May 4. Other officers are: Dr. James B. Fisher, Wichita, first vice-president; Dr. E. Burke Scagnelli, Dodge City, second vice-president, and Dr. Lucien R. Pyle, Topeka, secretary-treasurer. Dr. Francis T. Collins, Topeka, is immediate past president.

The president and the president-elect of the Kansas Medical Society, Dr. Thomas P. Butcher of Emporia and Dr. Glenn R. Peters of Kansas City, serve on the board of directors along with the following representatives of the 17 councilor districts: Dr. E. T. Wulff, Atchison; Dr. Thomas R. Hamilton, Kansas City; Dr. Monti L. Belot, Lawrence; Dr. Pratt Irby, Fort Scott; Dr. Robert M. Carr, Junction City; Dr. Lucien R. Pyle, Topeka; Dr. A. E. Titus, Cottonwood Falls; Dr. H. J. Brown, Winfield; Dr. H. S. Dreher, Sr., Salina; Dr. Victor R. Moorman, Hutchinson; Dr. Robert K. Purves, Wichita; Dr. James L. McGovern, Wellington; Dr. A. M. Cherner, Hays; Dr. S. T. Coughlin, Larned; Dr. Jerry McNickle, Ashland; Dr. Floyd Smith, Colby, and Dr. Marshall Brewer, Ulysses.

Representing the Members' Committee are Mr. Russell Mosser of Lawrence, Mr. Joe Reilly of Pittsburg, Mr. H. P. Reynolds of Moline, and Mr. J. D. Smerchek, Manhattan. Appointed by the governor are Mr. John Junior Armstrong of Muscotah and Mr. Rolland Jacquart of Sublette.

## Kansas Chapter, American Academy of General Practice

Dr. Floyd E. Dillenbeck, El Dorado, was named president of the Kansas Chapter, American Academy of General Practice, at the annual meeting of the group. Dr. Cloyce A. Newman, Topeka, was chosen to serve as president-elect, and the following other officers were named: Dr. J. Allen Howell, Wellington, vice-president; Dr. Gaylord P. Neighbor, Kansas City, secretary-treasurer; Dr. Lawrence E. Leigh, Overland Park, delegate to meetings of the American Academy of General Practice, and Dr. Jesse D. Rising, Kansas City, alternate delegate.

## Kansas Society of Anesthesiology

At a meeting of the Kansas Society of Anesthesiology held on May 5, the following officers were elected: president, Dr. William F. Powers, Wichita; vice-president, Dr. Harold F. Spencer, Emporia; secretary, Dr. LaRue W. Owen, Wichita; treasurer, Dr. Gretchen L. Guernsey, Kansas City; delegate to American Society of Anesthesiology, Dr. Dale U.

Loyd, Wichita; alternate delegate, Dr. Paul H. Loran, Kansas City.

## Kansas Obstetrical Society

Officers for the 1958-1959 year were chosen by the Kansas Obstetrical Society at a meeting held on May 5. The following were named: president, Dr. Edward X. Crowley, Wichita; president-elect, Dr. Robert Sohlberg, Jr., McPherson; vice-president, Dr. Henry M. Foster, Hays; secretary-treasurer, Dr. Arnold H. Baum, Dodge City.

## Kansas Orthopedic Club

Dr. Clyde B. Trees, Topeka, became president of the Kansas Orthopedic Club as the result of an election held at the group's annual meeting on May 5. Dr. Henry O. Marsh, Wichita, was named secretary-treasurer. The club made a contribution of \$50 to the James B. Weaver Research Fund at the University of Kansas School of Medicine through the University of Kansas Endowment Association.

## Kansas Society of Pathologists

The following officers were named by the Kansas Society of Pathologists at a meeting held on May 5: president, Dr. Leo P. Cawley, Wichita; vice-president, Dr. Tom R. Hamilton, Kansas City; secretary-treasurer, Dr. William J. Reals, Wichita.

## Kansas Urological Society

A meeting of the Kansas Urological Society was held at the Terrace Club in Kansas City on May 5. Dr. Pratt Irby of Fort Scott was named president for the coming year, Dr. Walter Mau of Topeka was chosen as vice-president, and Dr. William H. Browning of Wichita was elected to represent the group at meetings having to do with Blue Shield or other insurance problems.

## Woman's Auxiliary to the Kansas Medical Society

Mrs. R. T. Unruh, Kinsley, was installed as president of the Woman's Auxiliary to the Kansas Medical Society at the close of the organization's annual convention in Kansas City, May 5-7. Other officers elected at that session are: president-elect, Mrs. Louis G. Graves, St. John; first vice-president, Mrs. Chester L. Young, Kansas City; second vice-president, Mrs. Paul H. Wedin, Wichita; third vice-president, Mrs. L. S. Nelson, Jr., Salina; fourth vice-president, Mrs. Virgil E. Brown, Sabetha; recording secretary, Mrs. Edward D. Greenwood, Topeka; treasurer, Mrs. William T. Braun, Pittsburg.

Ten councilors were elected for two-year terms, to serve with the seven elected last year. The complete group, by districts, is as follows: District 1,

Mrs. F. I. Stuart, Atchison; District 2, Mrs. Louis G. Graves, St. John; District 3, Mrs. Alex C. Mitchell, Lawrence; District 4, Mrs. Guy W. Cramer, Parsons; District 5, Mrs. James D. Colt, Sr., Manhattan; District 6, Mrs. Francis T. Collins, Topeka; District 7, Mrs. Richard P. Schellinger, Emporia; District 8, Mrs. Glen E. Kassebaum, El Dorado; District 9, Mrs. H. Richard Draemel, Salina; District 10, Mrs. George A. Westfall, Jr., Halstead; District 11, Mrs. H. Lee Barry, Wichita; District 12, Mrs. Leeman C. Joslin, Harper; District 13, Mrs. John C. Artman, Hays; District 14, Mrs. C. Everett Brown, Stafford; District 15, Mrs. Darwin Richardson, Minneola; District 16, Mrs. James J. Marchbanks, Oakley; District 17, Mrs. Robert Fenton, Garden City.

### **Kansas Medical Assistants' Society**

The 18th annual meeting of the Kansas Medical Assistants' Society was held at the Town House Hotel, Kansas City, May 2-May 4. At its business session the group put special emphasis on its program of education for assistants and on strengthening the new national organization.

Mrs. W. W. (Edna) Crosson, Lyons, was installed as president at the final session. She will be assisted during her year in office by Mrs. Larry F. (Ruth) Sieverling, Wichita, president-elect; Miss Marge Slaymaker, Newton, vice-president; Miss Dorothy Dora, Kansas City, secretary, and Mrs. W. L. (Ruth) Jones, Topeka, treasurer. The corresponding secretary, appointed by the president, will be Mrs. Sidney (Virginia) Brown, Larned.

The following four were chosen to attend the meeting of the American Association of Medical Assistants as delegates from Kansas: Mrs. Crosson, Mrs. Sieverling, Mrs. Pauline Keller of Topeka, and Miss Hope Finley of Hutchinson. The national meeting will be held in Chicago this fall.

### **Kansas Society of Medical Technologists**

Miss Kathern Forest, Wichita, was installed as president of the Kansas Society of Medical Technologists at the close of the organization's 11th annual convention in Kansas City on May 7. Other officers are: Mrs. Mary Nugent, Lawrence, vice-president; Miss Ina Mae Shantz, Wichita, secretary, and Miss Lillian Thiessen, Newton, treasurer. Newly elected members of the board of directors are Miss Edith Bossom and Miss Phyllis Boyle, both of the University of Kansas Medical Center.

### **Report of Editor of Journal**

I can say that the JOURNAL has grown statistically, having consisted of 1,232 pages in the last fiscal year,

and with a small increase in the number of scientific articles, while maintaining the same number of Clinicopathological Conferences, Tumor Conferences, and theses as in the last few years. However, statistics do not tell the whole story, and the number of pages or articles does not necessarily express with accuracy the usefulness of the JOURNAL—or its lack! Financially the JOURNAL is in sound condition.

We are most pleased to present to our readers a series of short articles prepared by the Committee on Maternal Welfare, based on a study of maternal deaths in the state. Similar pages are or will soon be published reporting the activities of the Committee on Child Welfare and the Committee on Mental Health. The reporting of committee activities is something which we feel is an important function of the JOURNAL, and reflects a useful activity of our committees. I hope that other committees will see fit to write about their activities and submit the reports to the JOURNAL.

The placing of advertisements in the JOURNAL was changed starting with the January 1958 issue. Except for the four-page center spread (which does not include any numbered pages and is consequently removable) all advertisements are now located either at the front or at the back of the issue and are not interspersed with text material. It should make for easier reading, and if one wishes to remove text pages for temporary or permanent use, this can now be done without taking advertisements with the extracted material. We hope it will help to make the JOURNAL easier and more pleasant to read.

The increase in the amount of advertising, which I am sure has been noticeable to all readers, is a situation which produces mixed feelings. Obviously an increase in advertising means an increase in income, and for this we are, naturally, grateful. It has made the financial status of the JOURNAL more secure than previously. However, it also makes a JOURNAL which is less attractive to some readers, and this we do not like. We do not have such need of additional income that advertisements need be accepted to the point of detracting from the principal features of the JOURNAL, and we do not wish to do that. The rejection of suitable advertising presents some problems, but it may be necessary. The advertising, even with the recent increase, has not, and it should not, exceed the text material, but the Editorial Board is conscious of the fact that it is not an unmixed blessing and is giving consideration to the situation. We do feel that the present method of placing the advertisements in a separate section, rather than mixed with text material, does away with part of the objection to the increased amount.

During the past year the Editorial Board has given considerable thought to the future policy of

the JOURNAL. This has been brought to the fore partly by the continuing shortage of available scientific papers—a situation which has been presented to you in various previous reports of the editor. In spite of repeated pleas for papers, there has been little improvement in the availability of scientific material for publication, although we all know that there could be plenty of interesting papers from our members. Obviously the JOURNAL could have its best scientific section if there were many more papers submitted than we could publish. That would make it possible to pick out those which seemed the best and return the others. We recognize the lure of specialty journals, and of journals which have a national distribution, yet one of the most often repeated requests in the recent questionnaire was to have more papers from Kansas physicians.

A second reason for considering a future policy was the answers to the recent questionnaire. Some of these answers suggested radical changes. One—from a number of sources—was to discontinue the scientific section altogether and make the JOURNAL a news bulletin for the Kansas Medical Society. We of the Editorial Board had seriously considered this possibility even before the questionnaire was submitted, and while we do not favor it, we recognize that if there is not sufficient scientific material of satisfactory quality, such a change might become necessary. My personal reaction is that such a change would be an admission of our failure to publish a decent JOURNAL, and would be the acceptance of a second-choice or substitute type of periodical. I hope that it will not be necessary.

The answers to the questionnaire are both interesting and thought-provoking. Obviously the easiest way to answer is to write nothing; it requires only a little more effort to express the attitude that "everything is fine as it is"; a little more is needed to offer criticisms; and most of all is required to suggest changes for the improvement of the situation. These latter two groups, although not flattering, we must accept as being given in good faith, after due deliberation, and with the intention of being helpful. As such, they deserve careful consideration.

The variation in answers is interesting. For example: "The improvement of this JOURNAL over the period of the last 8-10 years is phenomenal," and "Over the past few years I have seen the JOURNAL . . . change from one that I anticipated each month, to one that is on my desk only a few minutes before it lands in the trash can," and ". . . who would be foolish enough to believe that more than ten per cent of the in-state doctors . . . actually read the JOURNAL? Why waste the effort and the money on such a useless project?" It is certainly difficult to

please everybody all the time. Of that much we can be sure!

Other suggestions which were offered and which justify careful consideration are: to include more articles by Kansas physicians, to have more but shorter scientific articles, to have more news notes and activities of physicians, to have more symposia, to include medical history, and more articles on basic sciences. Some would also like to eliminate various present features.

I believe that we are at the crossroads for the future policy of the JOURNAL. The most significant "vote" for a continuation of the scientific section would be a significant increase in the number of scientific articles submitted for consideration. It is my personal feeling that our greatest deficiency is in not having active participation by more Kansas physicians—in the writing of material to be submitted to the JOURNAL, be it scientific material, news notes, humor, letters-to-the-editor, committee reports, or other material.

I am not as pessimistic as this may have sounded. I only wish to have you realize that there are some problems which confront the JOURNAL staff beside that of getting copy to the printer for a specific issue. Your opinions and suggestions are always welcome and respected and will be given careful consideration.

Although I have exhausted ways of expressing my appreciation to those who do the work of getting the JOURNAL ready each month, I cannot conclude this report without special appreciation to the members of the Editorial Board (Richard Greer, David E. Gray, Dwight Lawson, and John A. Segerson); to Vernon E. Wilson of the University of Kansas School of Medicine, who edits all the material from that source; to Oliver Ebel and Rueben Dalbec of the office of the Society; and "last but not most" to our faithful Pauline Farrell. Without the work of these people there would be no JOURNAL, and in spite of criticisms, I am sure that you join with me in expressing appreciation to all of these people for their contributions.

*Orville R. Clark, M.D., Editor*

### Report of Constitutional Secretary

This is the membership report of the Society for 1958:

Dues-paid members . . . . .	1,443
Honorary members . . . . .	170
Leave-of-absence members . . . . .	55
In-service members . . . . .	13
Delinquent members . . . . .	169
Total	1,850



In 1953 the total membership was 1,767; 1954, 1,824; 1955, 1,843; 1956, 1,842; 1957, 1,842.

There now is a gain of eight members, but it is more significant that there has been an increase of 50 in dues-paying members.

*George E. Burket, Jr., M.D., Secretary*

### Sports Events

Awards for sportsmen who excelled at golf and shooting were presented at a stag banquet at the Victory Hills Golf and Country Club on Wednesday evening, May 7. Members of the Kansas Bar Association were guests. Winning prizes at golf were:

Championship flight: Dr. Fred N. Bosilevac, Kansas City, winner; Dr. A. W. Bradford, Overland Park, second low gross; Dr. Glen Ashley, Chanute, third low gross; Dr. A. L. Ashmore, Wichita, fourth low gross; Dr. J. R. Weaver, Wichita, fifth low gross; Dr. John F. Coyle, Coffeyville, first low net; Dr. Robert K. Purves, Wichita, second low net, and Dr. H. L. Bunker, Junction City, third low net.

First flight: Dr. Hubert M. Floersch, Kansas City, winner; Dr. M. W. Hall, Wichita, second low gross; Dr. Henry B. Sullivan, Jr., Shawnee, third low gross; Dr. K. L. Knuth, Mission, first low net; Dr. Clifford J. Mullen, Kansas City, second low net, and Dr. James W. Shaw, Wichita, third low net.

Second flight: Dr. M. Kirk Miller, Jr., Topeka, winner; Dr. Robert P. Norris, Wichita, second low gross; Dr. Glen Floyd, Winfield, third low gross; Dr. H. Lee Barry, Wichita, first low net; Dr. Paul R. Carpenter, Kansas City, second low net, and Dr. H. R. Hodson, Wichita, third low net.

Third flight: Dr. Martin J. Rucker, Sabetha, winner; Dr. William L. Padgett, Wichita, second low gross; Dr. J. E. Moseley, Wichita, third low gross; Dr. Wilson K. Hobart, Topeka, first low net; Dr. Kenneth L. May, Bonner Springs, second low net, and Dr. Marvin H. Hird, Wichita, third low net.

Fourth flight: Dr. Frank J. Strick, Kansas City, winner; Dr. Charles A. Crockett, Kansas City, second low gross; Dr. Charles R. Rombold, Wichita, third low gross; Dr. William F. Roth, Jr., Kansas City, first low net; Dr. E. C. Sifers, Kansas City, second low net, and Dr. Robert Sohlberg, Jr., McPherson, third low net.

Winner of the trap shoot was Dr. W. A. Smiley, Sr., Junction City. Other shooting prizes were won by Dr. Murray C. Eddy, Hays, second; Dr. Haddon Peck, St. Francis, third; Dr. E. A. Smiley, Junction City, fourth; Dr. L. S. Nelson, Salina, fifth; Dr. George L. Gill, Sterling, sixth, and Dr. Robert P. McCarthy, Kansas City, tyro.

The following firms contributed to the success of the sports events: Abbott Laboratories, American Optical Company, Ames Company, Inc., Armour

Laboratories, George A. Breon and Company, Burroughs Wellcome Company, Ciba Pharmaceutical Products, Inc., Eaton Laboratories, Ethicon, Inc., Gerber Products Company, Hoffmann-LaRoche, Inc., W. E. Isle Company, Eli Lilly and Company, Mead Johnson and Company, Merck, Sharp and Dohme, William S. Merrell Company, Mid-West Surgical Supply Company, Inc., Munns Medical Supply Company, National Drug Company, Pet Milk Company, A. H. Robins Company, Sandoz Pharmaceuticals, W. B. Saunders Company, Schering Corporation, Smith, Kline and French Laboratories, U. S. Vitamin Corporation, White Laboratories, Winthrop Laboratories, and Wyeth, Inc.

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### Board of Health Appointments

Several appointments announced recently by Governor George Docking filled vacancies occurring on the Kansas State Board of Health at this time of year. Dr. James J. Basham, Fort Scott, and Dr. Earl C. Sifers, Kansas City, were named recently to complete the group of five physicians. Still on the board from previous appointments are Dr. Theodore E. Young, Winfield; Dr. Richard O. Nelson, Lawrence, and Dr. L. O. E. Peckenschneider, Halstead.

The dentist on the board is Dr. A. A. Herman, Hays. Also serving are: a veterinarian, Dr. Fred B. Ogilvie, Kansas City; a hospital administrator, Mr. Richard E. Stone, Wichita; a pharmacist, Mr. Walter E. Fraese, Hutchinson, and an engineer, Mr. Ed W. Schaefer, Prairie Village.

Dr. Thomas R. Hood, Topeka, serves as executive secretary of the board.

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### New Assistant to Dean

Dr. Jack D. Walker, who has been practicing in Girard the last four years, has been named administrative assistant to the dean of the University of Kansas School of Medicine in Kansas City. He will assume his new duties in about two weeks. Dr. Walker was graduated from the medical school in Kansas City in 1953.

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### A.M.A. Films "Outstanding"

Two films produced by the A.M.A., "Even for One" and "A Life to Save," were among the 50 "outstanding TV films" chosen by representatives of the nation's television stations, according to *Variety*, show business publication. Also in the group was "We, the Mentally Ill," produced by Smith, Kline and French Laboratories in cooperation with the A.M.A.

# Medico-Legal Problems

EDWARD J. RYAN, M.D., *Emporia*

There are two phases of our mutual problems that I would like to discuss briefly. Both stem from the films which practically all of us have seen here or elsewhere, "The Doctor As a Witness" and "The Doctor Defendant." Either topic could become controversial, and I am anxious to avoid any such situation. However, I feel that there are certain things which should be said from the standpoint of the physician.

Let me say first, though, that it is a real pleasure to me to see this panel on the program as a tangible evidence of cooperation between our two professions. I believe that discussions such as this, implementing the joint code of ethics, will go far to enhance the dignity of each profession—in its own right and in its relation with the other. Of even greater value in this respect would be the functions of a joint medical-legal committee as recommended in the interprofessional code for attorneys and physicians. Such a committee could work continuously at improving relations and could arbitrate minor differences before they became major clashes.

"The Doctor As a Witness" film brought to my mind several rather unpleasant recollections, as I imagine it did to some of you. I have a feeling that many physicians share with me an instinctive unease with respect to lawyers. Not as individuals. Every attorney of my acquaintance is a fine fellow, and as far as I know a man of integrity. However, all that ceases when the subpoena appears or when the request appears for expert testimony. At that point the attorney on your side is a sympathetic, helpful, intelligent gentleman. But the cross-examiner—that's a different story. He is tricky, unscrupulous, and even his ethics may be in doubt—at least by the witness.

This feeling, I think, arises from three facts, all of which are interrelated.

1. *Lack of familiarity on the part of the physician with courtroom procedure.* Most of us, unless we do orthopedic surgery or industrial medicine, don't have too much occasion to testify. Therefore, it is an uncomfortable sensation to leave the familiar realm of medicine, where your opinion is respected by patient and associates, and enter a strange realm where you know your opinion is to be questioned, and even disproved if possible.

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This brief view of mutual problems of the medical and legal professions was presented by Dr. Edward J. Ryan, Emporia, at Kansas City, May 7, 1958, during a panel discussion presented by and for members of both groups.

## *The Physician and the Attorney*

2. The second reason is a corollary of the first. The attorney lives in an atmosphere of disagreement with a vocal, competent, and intelligent adversary who is as anxious to win for his client as the first named gentleman is anxious to win for his. The physician has disease as an adversary. This can be just as dangerous but certainly less vocal. Again, as a result, *the physician treads on unfamiliar ground and has difficulty in maintaining the fine objectivity which makes for maximum efficiency in his courtroom appearance.*

3. The third reason likewise stems from the first. *It can be frustrating, annoying, and sometimes humiliating to have one's opinion questioned by one who is not trained in medicine,* sometimes to be badgered without adequate recourse because of the restrictions of courtroom procedure.

Now I know that our attorney friends will say that none of these situations should occur. And probably that is true, but the fact remains that they do. It is certainly granted that they can be minimized by the seasoned medical witness. If he will properly prepare his case (and have all data immediately available), if he avoids speculation and theory, if he speaks simply in simple language, and, above all, if he will avoid anger and say "I don't know" when indicated, he can minimize his problems. Even with all this, testifying can be an ordeal for the average physician. Scrupulous observance of the recommendations in the joint code of ethics by both physician and attorney would go far to simplify this problem.

The other film, "The Doctor Defendant," brings up a dirty word—malpractice. Again, I am anxious to avoid controversy so I will not discuss this topic in detail. However, I think one point might be made.

To the attorney, a suit for malpractice is probably just another suit. He will attempt to win for the plaintiff, as he would for any other client who retains his services. If he loses, no major damage has been done.

To the physician, however, a malpractice suit would be in most instances a shattering experience. The actual monetary loss, win or lose, might not be too important. But, win or lose, the hours of time, the hours of worry and speculation, and, above all, the intangible quantity of loss in professional reputation, all of these are of most importance and cannot be accurately measured.

Perhaps a clearer grasp of this sensation can be obtained by the attorney if we transpose him to the doctor's realm for a moment. I can visualize the physician facing a malpractice suit feeling somewhat as the at-

torney would feel in this situation: He is being prepped the night before for combined abdomino-perineal resection for carcinoma of the rectum next morning, knowing that he will wear a colostomy for the rest of his life. Or, he has had repeated episodes of angina, he knows that coronary thrombosis may be imminent, and he has been warned to avoid the stresses and strains of courtroom practice. I hope I have made this point clear.

Now, admittedly, not all physicians (nor attorneys) are perfect, and inevitably differences will arise between physician and patient on occasion, justified or not. Such differences may well eventuate in suit.

To help solve these differences I would like to suggest a procedure which is by no means original. That would be establishment of a grievance or arbitration committee at state medical society level. Such a committee, with aid of legal counsel, could function as an advisor to the physician, as illustrated in the film. Or it might extend its functions to serve as arbiter in disputes between physician and patient, again with aid of legal opinion and perhaps in cooperation with the Kansas Bar Association. The detailed functions of such a committee are nebulous in my thinking at this time, but I can visualize it as a deterrent to unnecessary legal action affecting physician and patient.

The thoughts expressed here are obviously my own. They reflect the physician's angle (or at least one physician's angle), which is the only approach I have any right to use. They are reflections on two phases of medico-legal relations, presented in the hope of stimulating questions and discussion.

### Report on Indigent Care

A new report titled "Medical Care for the Indigent in 1957" has been prepared by the Committee on Indigent Care of the A.M.A.'s Council on Medical Service. This report deals with some of the specific problems that states have encountered under current laws. Two previous reports in the series have dealt with the development of Public Assistance medical care and the changes made by 1956 and 1957 amendments to the program.

Effective July 1, 1957, new federal matching funds were authorized to reimburse the states for part of the cost of providing medical services to recipients of old age, blind, and permanent and total disability assistance, and of aid to dependent children. However, these additional funds could be applied only to payments made directly to the providers of medical services—physicians, hospitals, pharmacists, etc. States

applying for these funds could receive federal aid, outside the limits set by this new formula, only for payments made directly to assistance recipients.

In a number of states which had already provided comprehensive medical care for Public Assistance recipients, this new formula required considerable reorganization of the programs if maximum federal aid was to be achieved. The committee's new report examines in detail the problems raised for these states and the federal policies affecting methods of paying for medical services.

## DEATH NOTICES

CHESTER EARLE JOSS, M.D.

Dr. C. E. Joss, 73, Topeka physician since 1910, died in a Topeka hospital on April 22 after an illness of several months. A graduate of Hahnemann Medical College in Philadelphia, he came to Kansas immediately after completing his schooling and opened his office in Topeka. He specialized in surgery. Dr. Joss was an honorary member of the Shawnee County Medical Society. Among the survivors is a son, Dr. Charles S. Joss, with whom he was associated in practice.

ELMER ANDREW MINER, M.D.

A retired physician in Independence, Dr. E. A. Miner, 87, died there on April 25. He had been an honorary member of the Montgomery County Medical Society since 1948. He was graduated from Northwestern University Medical School in 1904, spent two years in internship at Wesley Hospital, Chicago, and then began practice in Independence in 1907. He was the author of a book, *Living the Liver Diet*.

MINUETTE SMITH MUNDELL, M.D.

Dr. Etta Mundell, 81, retired physician in Hutchinson, died at Grace Hospital there on April 24. She was the widow of Dr. Walter N. Mundell who died in January. She was graduated from the University of Kansas School of Medicine in 1914 and began practice in Hutchinson in 1915. She had been in retirement for 12 years and was an honorary member of the Reno County Medical Society.



# Economics in Medicine

## *The Business Side of Your Practice*

**FLOYD F. WEHRENBURG, Kansas City**

There was a time when business-like procedures were not essential in a medical office. But those were the days long ago when the doctor knew each of his patients personally and all about them, and patients knew almost as much about the doctor. In recent years and particularly in cities, the doctor-patient relationship is much less personal. Consequently the confidence each feels in the other must be based upon more concrete evidences of good faith.

It is true that word of a doctor's ability and fairness is quickly spread. However, there are still many patients who come to you knowing very little about you. Your office—its appearance and procedures—will lead the patient at his first visit to decide whether you are progressive, competent, and fair. It is important this his first impression be favorable!

Besides establishing a good relationship with your patients, you owe it to your family and yourself to be business-like in your practice. Your family deserves a good living, adequate protection in case of accident to you, and a secure future. You have a right to some leisure time, a fair return for your investment and effort in your practice, and an opportunity to retire comfortably at a reasonable age.

It will take effective office procedures and a sound financial program to accomplish these things. In this and subsequent articles we will discuss the most important factors to be considered in setting up such a program.

### **Your Fee Schedule**

Obviously one of the first steps toward financial success as well as fair treatment of all patients is to establish an adequate fee schedule. Most doctors want to have a "standard fee schedule" for the most common office procedures and average surgical and obstetrical cases. It is understood that fees will vary with circumstances, but where identical service is rendered to two of your patients, the fee should also be identical.

Your best guide is your county medical society fee schedule. This should be tailor-made for your community. If you do not have such a schedule, then get your colleagues together for a frank discussion of fees.

Your fees should be in line with your average patient's ability to pay. Do not let the poorest nor the richest man you serve influence your decisions in establishing average fees.

Don't try to be the highest-priced man in your community nor the lowest. Give the patient the best possible care and charge him a just fee based upon the service rendered, your training, ability, and experience. Patients realize that a specialist deserves higher fees for his additional training, but they do not understand great differences between specialists' fees. Nor can they understand why one generalist charges much more or less than another. The greater the variance in fees among doctors in one city, the stronger will be the prejudice and confusion among patients, and the profession as a whole will suffer.

If you practice in partnership, be sure that every partner offering the same service charges the same fee. Nothing is more disturbing to a patient than to discover that one doctor in a group charges more than another for identical treatments. Obviously the patient can conclude only one of two things; either one doctor isn't as good a physician or the other is money-hungry. Either conclusion will be unfavorable to both of you.

An established fee schedule makes your life easier too! You can be certain of less dissatisfaction from patients when they can be shown that the fees charged them are charged to everyone. And it will be a comfort to you to know that your fees are in line with those of your colleagues. The established fee schedule will save you time and worry in setting fees for individual cases. Any deviations will be justified on the basis of complications of the case requiring additional service or, if the fee is lowered, on the basis of the poverty of the patient.

In addition, such a schedule will be helpful to your assistant in explaining fees to patients; and frequently, if you fail to notify her of a charge, she will be able to determine it from the case history without disturbing you.

Finally, the established fee schedule is the basis for explaining obstetrical and surgical fees to patients prior to rendering service. This is a must for harmonious relationship as well as for good collections. So begin your financial program by establishing a standard fee schedule if you do not already have one!

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Mr. Wehrenburg is Missouri-Kansas Manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

The Hill-Burton program for U. S. grants to states to help build hospitals and other health facilities has run a successful course for almost 12 years. It has never been cut back in scope, and once (in 1954) it was expanded to take in diagnostic-treatment centers, nursing homes, chronic disease hospitals, and rehabilitation centers.

On the over-all, the U. S. puts up one-third of the money for a state's projects, but the state may give individual projects as much as two-thirds of their costs.

In the 12 years, 3,725 projects have been completed, are under construction, or have been approved. They represent a total investment of about \$3 billion, just under one-third of it federal money. Included are 156,658 hospital beds, 4,542 nursing beds, and almost 1,000 other facilities, such as rehabilitation centers.

Congress, as it has several times in the past, now is being asked to renew the program, which no doubt it will do. Also, the Department of Health, Education and Welfare and several organizations in the health fields have looked over the 12 years' experience and want some changes made in the way the program is handled. None of them, however, wants to end it.

The American Medical Association, for example, is suggesting that diagnostic-treatment and public health centers be dropped from the program, and that the mandatory emphasis on rural communities also be eliminated. These and other A.M.A. recommendations are the result of a 14-state survey by the association.

Also the A.M.A. joins with the Department of Health, Education, and Welfare in proposing that emphasis be placed on facilities for the chronically ill and nursing homes, and that states be given more freedom in shifting money among the various categories.

Both the A.M.A. and the A.H.A. want Congress to authorize loans for hospitals and nursing homes, with the A.M.A. recommending that loan guarantees be offered to proprietary as well as nonprofit institutions.

Before Congress are a dozen or more other sug-

gested changes. Several groups want the research fund raised from the present \$1.5 million a year to \$4 or \$5 million, and HEW would like to be able to advance money for planning when this action would hurry construction. HEW also, along with several Congressmen and state medical societies, would like to see the eligibility requirements eased so more nonprofit groups can build diagnostic-treatment centers. Another HEW proposal would recognize a rehabilitation center even if it did not furnish psychological, social, and vocational evaluation services, as well as medical; now the center has to furnish all four services.

At this writing, indications are that Congress will not allow a slip-up in extending the program, which is scheduled to expire June 30, 1959, even if it has to move along a simple extension bill, then try to work out agreement on all the suggested changes.

Regardless of what happens, Hill-Burton is undergoing more friendly—but critical—examination than it has experienced since its birth in 1946.

### Notes

American Association of Medical Colleges estimates that the country's 85 medical schools will require \$275 million for rehabilitation and new construction in the next few years, not including money for research and hospital construction.

To learn how far our supplies could be stretched in event of nuclear attack, the Office of Defense Mobilization has asked Public Health Service to survey 700 wholesale drug houses, surgical supply firms, and chain drugstore warehouses for an inventory of their stocks.

American Medical Association, among other groups, is supporting legislation that would request President Eisenhower to call a 1960 White House Conference on the problems of the aged. However, HEW sees no need for the conference, nor does it favor suggestions that a new bureau be set up to handle the problem, nor a commission created.

Dr. Thomas H. Alphin has resigned as director of the A.M.A.'s Washington Office to become associate medical director of the Equitable Life Assurance Society at the group's main office in New York. Dr. William J. Kennard, deputy director, has been named acting director of the Washington office.

VA is calling for bids on 12 construction projects estimated to cost a total of at least \$4.2 million. Locations include Murfreesboro, Tennessee; Tomah, Wisconsin; Columbia, South Carolina; Bay Pines, Florida; Newington, Connecticut; Iowa City, Iowa; West Roxbury, Massachusetts; Rutland Heights, Massachusetts; Walla Walla, Washington; Wood, Wisconsin; Wadsworth, Kansas.

## PHYSICIANS' ACTIVITIES

**Dr. Thomas P. Butcher**, Emporia, who became president of the Kansas Medical Society on May 7, was chosen as "Man of the Week" in his home community at that time and was the subject of a feature story in the *Emporia Gazette*.

Cystic fibrosis was the subject discussed by **Dr. Vincent L. Scott**, Wichita, on station KARD, Channel 3, at Wichita last month. The presentation was one of a series on "Your Doctor Speaks."

**Dr. William H. Zimmerman**, a graduate of Creighton University School of Medicine in 1952, has opened an office for the practice of surgery in Topeka. Dr. Zimmerman has had four years of surgical residency, at St. Joseph Hospital in Kansas City, Missouri, and at Creighton.

A feature story in the *Parsons Sun* on April 23 paid tribute to **Dr. Arthur R. Nash**, 87-year-old physician who has been practicing in Parsons since 1912.

**Dr. Lewis L. Robbins** and **Dr. Robert S. Wallerstein**, of the Menninger Foundation, Topeka, were co-authors of a paper, "The Strategy and Tactics of the Psychotherapy Research Project of the Menninger Foundation and the Problem of Controls," presented at a recent meeting of the American Psychological Association in Washington, D. C.

**Dr. Hoyt C. Blaylock**, Wichita, is now serving as president of the Rocky Mountain Dermatological Society.

Plans to practice in Girard have been announced by **Dr. Wesley Hall**, a graduate of the University of Kansas School of Medicine who is completing internship at Bethany Hospital, Kansas City.

Recognition was recently given **Dr. Emmitt E. Peterson**, Halstead, for 50 years of service on the staff of the Halstead Hospital. At a dinner attended by 500 persons, he was presented a plaque marking the occasion.

**Dr. J. V. Van Cleve**, Wichita, will be a guest lecturer at a postgraduate course in dermatology at the Colorado College of Medicine in Denver in July.

**Dr. Forrest L. Loveland**, Topeka, medical consultant for the Southwestern Bell Telephone Company, was one of the speakers at a meeting held in Wichita recently to acquaint physicians with the company's benefit program.

Plans to join a clinic group at Glencoe, Minnesota, have been announced by **Dr. Donald E. McCoy**, who has been practicing in Oberlin for 10 years.

**Dr. Ralph N. Sumner**, who recently completed internship at Bethany Hospital, Kansas City, plans to open an office in Fredonia next month.

"A Mental Health Clinic for Wichita" was the subject of a panel discussion presented in Wichita recently, one of the participants being **Dr. C. J. Kurth**.

**Dr. Robert E. Stowell**, chairman of the Department of Pathology and Oncology at the University of Kansas School of Medicine, recently was named president-elect of the International Academy of Pathology.

At a tea sponsored in Pittsburg recently by the Woman's Auxiliary to the Crawford County Medical Society, **Dr. Roletta Jolly-Fritz**, chief psychiatrist for the out-patient clinic at the Osawatomie State Hospital, spoke on the subject of mental health.

**Dr. D. Cramer Reed**, Wichita, discussed medical care for the indigent at a meeting of social workers in Wichita recently.

A move to Thermopolis, Wyoming, has been announced by **Dr. Lester D. Bowles**, who has been practicing in Clifton.

**Dr. Nathaniel Uhr**, Topeka, is vacationing in Europe with stops in England, France, Italy, Denmark, and the Netherlands.



Donating his services to the Red Cross Blood-mobile was the activity chosen by **Dr. J. D. Pettet**, Pittsburg, for the celebration of his 83rd birthday. Dr. Pettet, according to the *Pittsburg Sun*, has no plans to retire. He was honored on his birthday at a party given by the Veterans of Foreign Wars in Pittsburg.

**Dr. Christine Thelen**, Wichita, spoke on "The Menopause" before the Zeta Beta Psi sorority in Wichita last month.

**Dr. Francis E. Bishop**, who has practiced in Russell since 1955, left that community last month to begin a residency at the Menninger School of Psychiatry in Topeka.

"Prescribing Hospitalization" was the subject presented by **Dr. Bernard H. Hall**, Topeka, at a meeting of the American Psychiatric Association in San Francisco last month.

Among speakers at the 13th annual Ministers' and Physicians' Clinic, held in Wichita last month, was **Dr. Ernest W. Crow**, Wichita.

**Dr. Roy Lawson**, superintendent of the Southeast Kansas Tuberculosis Hospital in Chanute, addressed two public meetings recently. He discussed "Current Problems in the Control of Tuberculosis" before the Wyandotte County Tuberculosis and Health Association and spoke on a similar subject before the Business and Professional Women's Club in Cherryvale.

**Dr. Karl Menninger**, Topeka, has accepted membership on the Advisory Council to the Law-Medicine Research Institute of the Boston University School of Law.

"Psychosomatic Gynecology" was the subject discussed by **Dr. Jerome S. Menaker**, Wichita, before a recent meeting of the Tri-County Medical Society in McPherson.

**Dr. James B. Mercer**, Lenexa, has announced plans to open a second office in Shawnee.

The list of speakers for a Family Life Institute

planned for Belleville in September includes the name of **Dr. Ernie J. Chaney**, Belleville, who will discuss rural school health.

**Dr. William J. Reals**, Wichita, was recently appointed to the Advisory Laboratory Commission of the Kansas State Board of Health.

## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### DOCTORS NEEDED?

We have been reminded repeatedly lately of our shortage of engineers and scientists.

Now comes the *St. Louis Post-Dispatch* to say that we are becoming alarmingly short of medical doctors as well. It points out that the United States now has 78 four-year and four two-year medical schools, or only half-a-dozen more "than were in operation after the closing of the diploma mills early in the century."

Dr. Grayson Kirk, president of Columbia University, is quoted as saying that the United States has fewer doctors per 100,000 of population than it had 20 years ago.

Some 2,013 of the 11,616 internships in American hospitals are unfilled now. And only 1 per cent of those in higher educational institutions are medical students now, as against 2.4 per cent in 1920. The *Post-Dispatch* adds that the country's mental hospitals right now could use 3,700 more doctors.

The position of the American Medical Association, the doctors' organization, is that all that is needed is better distribution of the doctors we now have. Dr. Frank G. Dickinson, director of the A.M.A.'s bureau of medical economic research, contends that all that is necessary is to change the location of 361 doctors. Increased medical efficiency now means that fewer doctors are needed, Dr. Dickinson explains.

Talk of socialized medicine has slackened considerably since its peak about 10 years ago. But should this issue ever be actively revived by the politicians, the medical profession might be well advised to be sure it is not vulnerable on the score of an adequate supply of doctors for the growing population of this country. —*Wichita Eagle*, April 28, 1958.

## Interprofessional Code Adopted

A code to govern relationships between physicians and attorneys was approved by the Kansas organizations representing the two professions at meetings held in May. The House of Delegates of the Kansas Medical Society, at a session in Kansas City on May 7, voiced its approval, and the Kansas Bar Association gave similar sanction at its meeting in Topeka several days later.

The code follows:

### A. Preamble

Acknowledging that a substantial part of the practice of law and medicine is concerned with the problems of persons who are in need of the combined services of a lawyer and doctor; that the public interest and individual problems in these circumstances are best served only as a result of cooperative efforts of all concerned; that members of both the legal and medical professions share an obligation to the individual and to society, we, the members of the Bar Association of the State of Kansas and the Kansas Medical Society, do adopt and recommend the following declaration of principles as standards of conduct for attorneys and physicians, in interrelated practice.

### B. Cooperation Between Professions

1. It is recognized that the welfare of the physician's patient and the attorney's client requires complete cooperation between the physician and the attorney in all cases involving their combined services.

2. A physician should not advise on the amount of damages a patient should seek to recover, nor advise against the employment of an attorney. An attorney should not ask a physician to form or express an estimate of money damages in behalf of a patient. A physician, however, should be prepared to formulate and express an opinion as to the extent of disability, if any.

3. It is recognized that an attorney is the advocate of his client, and does not and cannot properly represent both sides. It is also recognized that a patient's attending physician has an obligation to furnish the patient's attorney with proper medical facts.

### C. Reports and Conferences

1. There should always be one or more conferences between the physician and the attorney relative to the common problems in a particular case. Arrangements for conferences should conserve the time of all parties and should be held at the mutual convenience of the physician and the attorney.

2. The physician should feel obligated to point out anything which he believes will be helpful in presenting the patient's case and any weaknesses in opposing medical theories or testimony.

3. It is the obligation of the attorney to arrange desirable conferences and to apprise the physician of the significance to the case of the particular medical testimony involved. The attorney should always invite and answer all questions of the physician concerning the evidence or its presentation, and should counsel the physician relative to cross examination.

4. A physician is entitled to the written authorization of the patient before he furnishes any attorney information concerning the history, physical condition, diagnosis, or prognosis of a patient, and the attorney should furnish such written authorization in advance of a request for a conference or medical report.

5. The patient's attorney is entitled to a prompt report from the attending or treating physician concerning the medical facts, including history, treatment, diagnosis, and prognosis. It is the obligation of the attorney to outline to the physician the matters he deems desirable to be covered in a medical report. A medical report shall be furnished as promptly as possible.

### D. Medical Testimony

1. The physician recognizes that medical testimony is often absolutely essential.

2. The attorney should make arrangements to permit the doctor to testify at the most convenient time and without unavoidable delay in the courtroom.

3. It is recommended that a conference should always be held prior to testimony.

4. If an attorney plans to have a subpoena served on a physician he should notify him, preferably in advance, of service where circumstances permit. The physician recognizes that in many cases justice requires the service of a subpoena.

5. It is recognized that the administration of justice by the courts cannot depend upon the convenience of litigants, attorneys, or witnesses, including physicians called to testify.

Therefore:

(a) The attorney should notify the physician as far in advance as possible as to when he is to be needed to testify, and keep him notified and advised as to any changes in this respect as they arise.

(b) The physician should arrange to appear promptly when requested and do so unless prevented by circumstances which would constitute legal excuse.

6. The physician, while testifying should:

(a) At all times maintain the dignity of his profession.

(b) Answer questions as concisely and objectively as possible, using terminology, when permissible, which is understandable to a jury of laymen.

- (c) If he does not know the answer to any question, so state and make no attempt to conjecture or theorize, or give answers not responsive to questions propounded or volunteer testimony.
- (d) Under no circumstances permit any bias, prejudice, favoritism, or personal interest to influence his testimony.

7. The attorney, in examining or cross-examining a physician, should:

- (a) Avoid questions which browbeat or badger the physician. The physician recognizes that it is the attorney's obligation to his client to be responsible for the trial of the case, and recognizes that cross-examination is a necessary part of the process of justice.
- (b) Prepare and propound all questions to the witness in such form and manner as will permit clear understanding and a forthright answer.
- (c) Cooperate with the physician by minimizing, as far as practicable, the time required for the physician to remain in court.

8. A physician treating a patient has a definite obligation to his patient to cooperate with the patient's attorney in presenting the medical facts in court. A physician called upon to examine a non-patient has the right to decline making such an examination, but if he undertakes an examination for the purpose of reporting as an expert he may also expect to be called to testify as an expert witness.

### **E. Compensation for Services of Physician**

1. A physician is entitled to reasonable compensation for professional services rendered. An attorney is prohibited by the ethics of his profession from making payment to the physician for medical reports or testimony, unless he has an agreement with the client for reimbursement. Such compensation must be paid by the patient or client. The physician is prohibited by the ethics of his profession from entering into any arrangement whereby the physician's charge is determined by the amount of financial recovery.

2. Notwithstanding that the attorney cannot assume an obligation to pay the fees of a physician, the attorney should ask authority of the patient to pay the physician direct for his services out of any money recovery obtained for the patient. It shall also be the obligation of the attorney to cooperate with the physician in making all proper arrangements for payment for his services.

3. When a physician testifies as an expert witness, his fees will be paid by the party calling him, in such amount as shall be agreed upon with the attorney representing such party.

4. Although the physician must set his own fees, it is suggested that a reasonable standard in many cases would be the equivalent of what the charge would be to a patient for the same amount of time and skill for professional services.

5. No attorney shall charge a fee to a physician for collection of an account for medical services, collected in personal injury litigation for the client-patient.

### **F. Joint Medical-Legal Committee**

The Bar Association of the State of Kansas and the Kansas Medical Society shall each appoint six members from its profession who shall serve on a committee, two to serve for a term of one year, two for a term of two years, and two for a term of three years, and thereafter members shall be appointed for a term of three years, and said twelve individuals shall constitute the Joint Medical-Legal Committee. Such committee shall:

- (a) Promulgate such suggestions as may be necessary to carry into effect the principles hereby adopted.
- (b) Jointly attempt to mediate and arbitrate, in the first instance, any disputes arising between individual physicians and lawyers or between the two professions.
- (c) Report annually to each of said organizations the work of the committee during the year and make such recommendations to said organizations as the committee deems desirable.

### **G. Enactment**

This code shall become effective upon its adoption by the Bar Association of the State of Kansas and the Kansas Medical Society. It shall be subject to amendment by joint action of the two professions and shall guide both professions in their interprofessional relationships in a spirit of cooperation and understanding.

### **H. Approvals**

1. This code has been approved by the Committee on Relations with the Medical Profession of the Bar Association of the State of Kansas, and is, by them, respectfully submitted.

/S/ Ford Harbaugh, Wellington, Chairman  
 William Tinker, Wichita  
 William E. Cunningham, Arkansas  
 City  
 William B. Ryan, Norton  
 David H. Fisher, Topeka  
 Payne Ratner, Jr., Wichita  
 David Prager, Topeka  
 Lee Weeks, Kansas City  
 Blake A. Williamson, Kansas City  
 Vernon Stroberg, Newton  
 Clyde Hill, Yates Center  
 George B. Powers, Ex-Officio, Wichita



2. This code has been approved by the Committee on Relations with the Legal Profession of the Kansas Medical Society, and is, by them, respectfully submitted.

/S/ T. P. Butcher, M.D., Emporia, Chairman

Philip C. Nohe, M.D., Kansas City

C. R. Rombold, M.D., Wichita

R. E. Stowell, M.D., University of  
Kansas Medical Center, Kansas  
City

K. E. Voldeng, M.D., Wellington

### Program on Accidents and Victims

A joint action program aimed at preventing accidents and improving care of accident victims was announced recently by the American College of Surgeons, the National Safety Council, and the American Association for the Surgery of Trauma.

As outlined by the representatives of the three participating organizations, the program will include:

1. Public education in accident prevention and handling of the injured.
2. Employment of joint state and local committees of the American College of Surgeons and National Safety Councils, together with other interested surgeons, safety engineers, and public officials to formulate safety plans for local communities.
3. Possible registration of unusual cases of injury.
4. Proposed investigations of emergency care of traffic injuries.
5. Model legislation to require adequate training in first aid and transportation of the injured for ambulance attendants, policemen and firemen.
6. Cooperation in the production and improvement of training materials and instructional aids dealing with problems in handling the injured.

Educational activities in the program will include meetings to be conducted in conjunction with national, regional, and local activities of the participating organizations. In addition, courses of instruction in first aid and transportation of the injured will be developed, and available materials will be reviewed for the purpose of emphasizing surgical aspects of the problem.

Another aspect of the program, registration of unusual cases of trauma, has yet to be worked out and approved but, as proposed, would be conducted primarily by the surgical organizations, it was reported. Physicians and hospitals would be asked to report unusual cases to the College, it was explained, and this information would then be evaluated and reported back to physicians by a special committee of

the College and the American Association for the Surgery of Trauma.

Under the program, the annual inventory of traffic safety activities now conducted by the National Safety Council may be expanded to include data on the transportation of injured persons. With the help of surgeons, inventory questions relating to the transportation and emergency care of traffic injuries would be formulated and included in inventory procedures followed by state and city Council organizations. Data thus collected would be studied by surgeon members of the group and council recommendations would be based in part on the surgeon's recommendations.

Resources of the three organizations will be used in the effort to advise and assist civic groups to obtain passage of local ordinances requiring adequate training in handling of the injured by ambulance attendants, policemen and firemen, the joint statement said. Under a proposed model ordinance, ambulance attendants are required to have complete standard and advanced first aid training and additional training as recommended by local health departments, to carry cards indicating their qualifications and to be re-examined and certified annually for their fitness to serve.

### New Radio Health Series

To give each community a monthly report on the newest and best in medicine, the American Medical Association introduces its new radio transcription series, "Health Magazine of the Air." Based on current items from *Today's Health* magazine, the new 15-minute series features H. V. Kaltenborn, veteran newscaster and radio-TV commentator, and W. W. Bauer, M.D., A.M.A.'s Bureau of Health Education director.

Seasonal health spot announcements will be presented on the reverse side of the platters. These spots will be given by popular movie personalities who contribute their time as a public service.

First shipment of the new transcriptions was made to approximately 400 radio stations throughout the country recently. The platters are released about the fifth day of each month from February through December, 1958, for immediate broadcast. Although the present selection of stations has been based on those previously airing A.M.A. radio transcriptions, local medical societies may contact the Bureau of Health Education for further information regarding additional outlets.

More than 22 per cent of 1956 U. S. highway deaths occurred on Saturdays.

## BOOK REVIEWS

*Drugs of Choice, 1958-1959. Edited by Walter Modell. Published by C. V. Mosby Company, St. Louis. 931 pages. Price \$12.75.*

The backbone of therapy is differential diagnosis, but once the diagnosis has been established where is the practitioner to get up-to-date information concerning the choice of drugs in these days of rapid therapeutic advances? Drugs appear on the market so rapidly that one hardly has time to become familiar with their names, let alone their pharmacologic properties and therapeutic potentialities. It is simply not possible for any one practitioner to learn enough about all of the new drugs to estimate their relative merits, and even the most recently published textbooks of pharmacology are of little help. Still, the proper choice of drugs remains a major factor in the patient's welfare.

Dr. Modell's book, the title of which indicates that it will be revised biannually, goes a long way toward providing the physician with information on modern drug therapy. Annual publications which give current information on therapeutic regimens are available, and these have proved to be of great value to physicians who are confronted with problems that are a little outside their usual experience. The present volume does not present regimens empirically, but rather discusses therapeutic problems and the drugs which bear on them from the point of view of the rationale of drug therapy and the factors involved in making an intelligent choice between available therapeutic agents.

The editor, with the help of 36 additional contributors, covers a wide range of therapeutic situations in 35 chapters. The introductory chapter, "Principles of the Choice of Drugs," should be required reading for all medical students and practitioners. Among the many topics covered are "The Choice of Drugs for the Relief of Pain," "The Choice of Drugs for Gastrointestinal Disturbances," "The Choice of an Antiarthritic Agent."

Chapters typically open with an interesting introductory section which delineates the therapeutic problem. Following this, various drugs are discussed from the point of view of their pharmacological properties which have a bearing on the therapeutic situation. After each drug has been given consideration the reader's attention is directed to the rational basis for the selection of drugs and the best method of employing them. Each chapter closes with selected references to the pertinent medical literature and a drug index enumerating the more commonly used official and proprietary preparations.

As one might expect in a multiple-author book,

the chapters vary somewhat in quality, and some statements are rather too dogmatic. It is inevitable that this should be so, otherwise the reader would be involved in endless controversy and the book would reach impossible size. The book is well printed and bound, and the index is adequate.

There is much in this book which should be of interest to all physicians, material which is not readily available in the literature or in standard books on pharmacology and therapeutics. As stated before, the first chapter, "Principles of the Choice of Drugs," should be read and re-read by every physician, and it is alone worth the price of the book.—J.D.R.

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*The Neuroses and Their Treatment. By Edward Podolsky. Published by Philosophical Library, Inc., New York City. 555 pages. Price \$10.*

The articles in this book comprise an excellent selection but they vary greatly in one respect. Some, such as those by Metzger, Podolsky, and Meyer, as well as those on the use of drugs and short term psychotherapy, fit well with the purpose of the book as it is written for all physicians. Others, such as those by Ullman and Fischer, would seem to require some psychiatric training for their appreciation.

It would add to the book to give some identifying information about the authors, to give the specific references of the articles, and to give some basic references on the subject of the book.—J.S.J.

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### Care of the Cardiovascular Patient

Numerous pitfalls and problems in the rehabilitation of a patient who has had a heart attack or a breakdown of the blood vessels were outlined recently at a symposium sponsored by the Postgraduate Division of Stuyvesant Polyclinic and the American College of Angiology at the New York Academy of Medicine.

A group of clinicians, comprising the discussion panel, cautioned against a variety of hazardous pitfalls which may occur in the course of treating a cardiac patient. These pitfalls include: a common tendency of physicians to treat the disease rather than the patient; the failure to recognize the value of long-term anti-coagulant therapy; the failure to evaluate adequately the serious hazards resulting either from constipation or even in the absence of constipation from straining at stool; the failure to evaluate the psychologic stress imposed on the patient by business and inter-personal relationships; the failure to realize that a patient who has undergone cardiac surgery may suffer various side-effects, including constipation, as a result of anesthesia or pain-killing drugs; and the dangers arising from mistakes in diagnoses, as between cardiovascular or gastrointestinal conditions.

### Model Law on Poison

After 15 months' study, the A.M.A. Committee on Toxicology has formulated a broad and encompassing model law for the precautionary labeling of hazardous substances in commercial, household, and industrial chemical products.

Speaking before a section of the New York Bar Association recently, Bernard E. Conley, Ph.D., secretary of the A.M.A. committee, said the proposed legislation is intended as a model for uniform laws to require declaration of hazardous ingredients and warning statements on the label and in the accompanying literature of chemical products used in the home and elsewhere.

The law is directed against those hazardous substances defined as toxic, irritating, sensitizing, corrosive, flammable, explosive, or radioactive under customary or reasonably anticipated conditions of handling and use. It would

- Require the labeling of all chemical products containing hazardous substances which are not now regulated.

- Require the same labeling standards to apply to chemicals for export as those for domestic consumption, thereby obviating the common complaint that less-than-standard products are sold to foreign customers.

- Prohibit re-use of food and drug containers bearing their original labels.

- Require identification and warnings for strongly sensitizing chemicals which cause allergic or inflammatory reactions in living tissue on contact.

Conley said a significant departure in drafting the new law was deletion of the word "poison" from the bill's provisions. This decision was reached, he said, after surveys showed a wide variation in existing legal limits for poison and a lack of agreement among scientists on a definition of the term.

### New Exhibits for Public

The A.M.A. Bureau of Exhibits announces that a number of new exhibits are ready for showings by local medical societies at fairs, home shows, school and similar public gatherings this spring and summer.

*You Can Reduce* shows foods to fill up on and stay away from, gives a visitor an opportunity to check his weight on the scales; presents answers to pertinent questions on reducing; pictures 25 different foods and the number of calories in the servings shown.

*Food and Nutrition Quackery* was developed in cooperation with U. S. Food and Drug Administration, Post Office Department's fraud division, and National Better Business Bureau to point up the

major false claims made in the promotion of food products and nutrition ideas; exposes house-to-house peddlers of "food supplements," nutrition and health lecturers and so-called "experts"; displays various reducing aids on a roulette wheel; features special "buyer beware" section explaining how public can recognize food quacks and their claims.

*Breathing* presents the anatomy of body's breathing system and air passages and location of lungs in the body. The viewer can observe how lungs expand and contract and the movement of the rib cage.

*Glands* shows the locations and functions of various glands in the body and presents three-dimensional models of glands.

*Poisoning of Children* demonstrates dangers of common household products and depicts those products that are leading causes of poisonings in children at home.

*Health Appraisal of the School Child* highlights principal health appraisal procedures, such as teacher observation, screening procedures, dental and medical examinations, and the follow-through.

### Statistics on A.M.A. Meeting

A study made by the New York Convention and Visitors Bureau after the 1957 meeting of the American Medical Association showed that 20,000 persons attended from out of town. Questionnaires were sent to 500 physicians after they had returned to their homes, and replies covered 213 persons. The average stay was from 5 to 10 days, and the average daily expenditure per person was \$35.27. The Bureau estimated total expenditures for all those in New York for the convention as \$3,603,130.

#### CLASSIFIED ADVERTISEMENTS

EXCELLENT OPPORTUNITY in group practice for a young general practitioner to replace retiring partner in growing Nebraska town of 15,000. Good salary to start, partnership as quickly as desired. Write the JOURNAL 9-58.

FOR RENT—Kansas City Neighborhood office. Four consultation rooms, small lab, share reception room with dentist. Excellent location in middle class neighborhood. Write the JOURNAL 8-58.

Vacancies exist at this hospital for Chief, Surgical Service (board certified or eligible required), ward physicians on medical, surgical, and psychiatric services after July 1, 1958. All applicants must be citizens of the U.S., having a license to practice medicine in one of the states, must be under 55 years of age and be in good physical condition. Liberal annual, sick, insurance and retirement benefits. Salary range commensurate with qualifications up to \$13,760. This is a modern 815-bed NP hospital with medical, surgical, TB-NP and neurological services, ideally located in the suburbs just 12 miles from downtown St. Louis. Write Manager, VA Hospital, Jefferson Barracks 23, Missouri.



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## Premature Cranial Suture Closure

### *A Preventable Cause of Mental Deficiency*

CHARLES M. POSER, M.D., *and*  
FRANKLIN R. MILLER, M.D., *Kansas City*

Premature closure of one or more of the sutures of the cranial vault invariably leads to restriction of normal growth of the infant brain. When a suture is prematurely closed, the skull perpendicular to this suture can grow very little and compensatory overgrowth takes place at the open sutures to make room for the progressively expanding brain. The end result is a grossly malformed, constricted skull containing at least a partially atrophic brain in a severely mentally retarded child. It is extremely important to recognize this condition early, since prompt surgical intervention will not only permit normal brain growth and probable normal mentality but will also result in an improved appearance.

The purpose of this article is to report a case of premature closure of the coronal suture, the result of neurosurgical correction, and the far-reaching improvement in the child's outlook initiated by this operation.

#### Case Report

C. C. was born to a 19-year-old mother following an uneventful full term pregnancy and a 12-hour uncomplicated labor. The presentation was a persistent occiput posterior. The abnormal shape of the baby's head was noted immediately after birth.

The immediate postnatal period was not remarkable, but it was erroneously believed that the infant might be a Mongolian idiot. Her weight at birth was 6 pounds 15 ounces and her head circumference was 13½ inches. The baby was seen shortly after birth by a neurosurgical consultant who advised im-

mediate operation for premature closure of the cranial sutures. The mother refused her consent. The reason for her refusal is not known.

When the infant was only 20 days old, application was made for her admission to the Winfield State Hospital and Training Center. This application carries as diagnosis: hydrocephalus with possible mental retardation. The baby was admitted to the institution at the age of 4½ months.

Physical examination at the time of admission revealed a healthy, alert baby girl who smiled readily at the examiner, held up her head, and attempted to sit up. She appeared to be of normal intelligence. The only remarkable physical finding consisted of an unusually large, abnormally shaped head with an increased vertical diameter and an antero-posterior flattening.

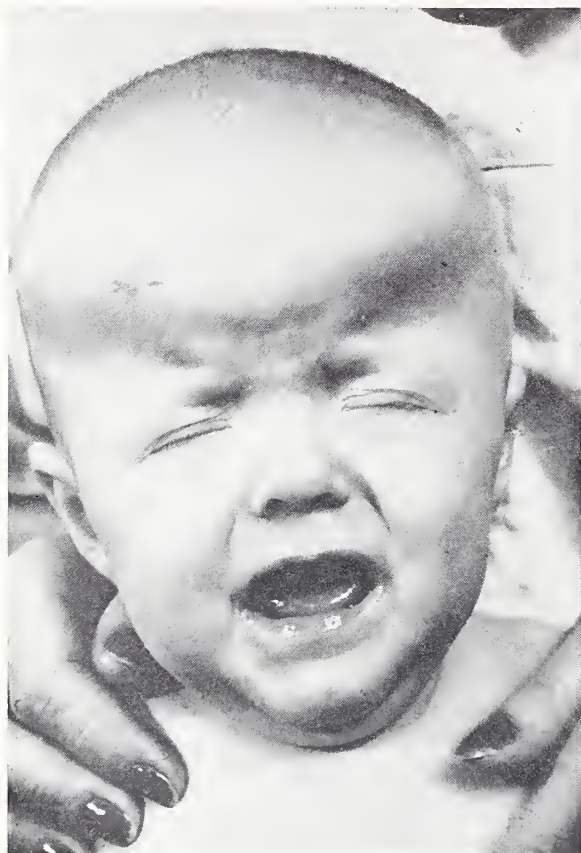
A psychological examination was performed when the child was five months old. On the Cattell Infant Intelligence Scale she obtained a mental age of 6.2 months. Roentgenograms of the skull showed a classic brachycephaly with closure of the coronal suture. Electroencephalographic examination gave a normal tracing for this age. The infant was transferred to the University of Kansas Medical Center for surgical intervention. On June 19, 1956, the coronal suture

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**Early recognition of this condition is important since prompt surgical intervention will permit normal brain growth, probable normal mentality, and improved appearance. A case is reported as illustration.**

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From the Winfield State Hospital and Training Center, Winfield, and the Section of Neurology, University of Kansas Medical Center, Kansas City.



Preoperative photograph of patient at age of six months, face.

was opened and the margins of the craniectomy covered with polyethylene. There were no postoperative complications and the infant was returned to Winfield ten days after the operation.

The baby was re-tested psychologically on July 26. The examiner found a basal age of seven months with credits earned through the ninth month, and



Preoperative photograph of patient at age six months, profile.

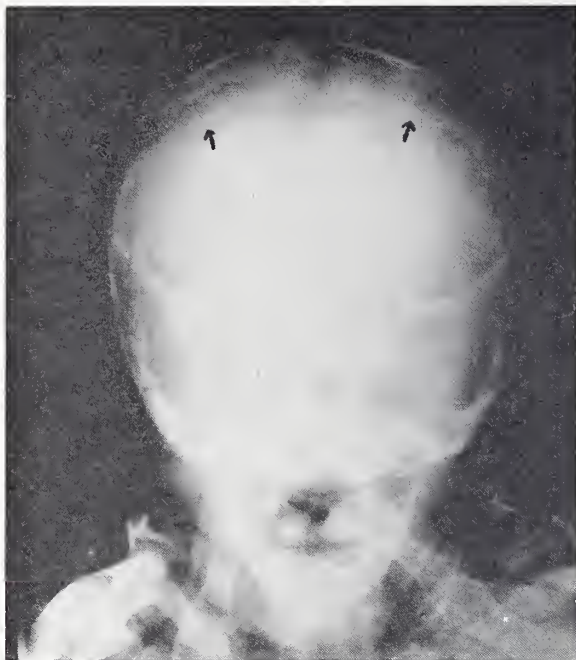
felt that the infant was functioning well within the normal range in spite of recently having undergone surgery. At the age of seven months, she was sitting alone and appeared interested in her environment and inquisitive about it. She babbled and made noises. She attempted to pull herself up and was able to stand with support.

Shortly thereafter the baby's mother was apprised of the changed prognosis and agreed to take her home.

A follow-up examination performed on October 8, 1957, at the Beaumont Neurological Center, Beaumont, Texas, where the mother had subsequently moved, was reported as follows: At the age of 21 months, the child had a vocabulary of about 20 words. With a combination of the Psyche-Cattell Infant Intelligence test and the Revised Stanford-Binet, Form L, she attained a mental age of 21 months, giving her an intelligence quotient of 100. On the Vineland Social Maturity Scale she attained a mental age of two years.

### Discussion

Premature closure of the cranial sutures is not a common condition, but its importance lies in the fact that early recognition and prompt neurosurgical intervention may prevent otherwise inevitable severe neurologic involvement which may lead to death. The condition usually develops in the first six months



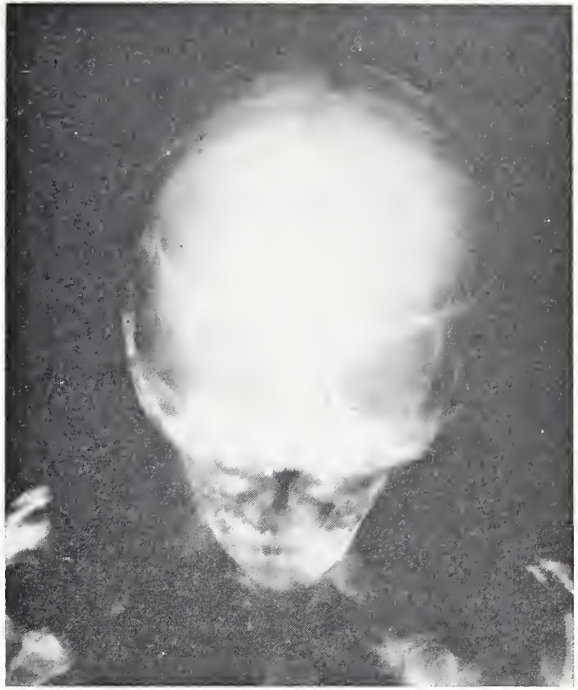
Preoperative roentgenograms of the skull, AP view. Note that sagittal suture is still open but that the coronal (arrows) is closed. Age six months.



of life. It is sometimes present at birth, as in our patient, and usually does not appear later than at the close of infancy (Benda). The particular shape of the skull is determined by which suture closes prematurely. Scaphocephaly results from premature closure of the sagittal suture; brachycephaly from premature closure of the coronal suture; and turri-cephaly or oxycephaly from the early closure of both coronal and sagittal sutures. The anterior fontanelle frequently remains open for a long time and may give a false sense of security to family and physician, or lead away completely from the correct diagnosis.

The basic pathologic effect is the disproportion between the cranial cavity and the growing brain. Increase in intracranial pressure is usually an early manifestation and eventually results in headaches, protrusion of the eyes, papilledema and optic atrophy, and eventually cerebral atrophy with severe mental retardation.

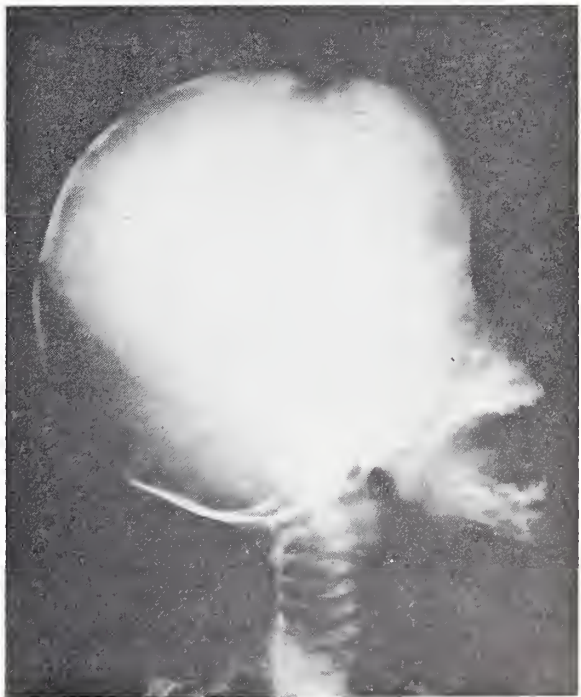
The etiology of this condition is unknown, but the most plausible explanation is the one offered by Park and Power who feel that it is due to a congenital defect in the germ plasm of the interstitial mesenchyme which normally separates the skull bones in their suture lines. The defective interstitial mesenchyme fails to produce new bone growth, which leads to early calcification of the suture line.



Immediate postoperative roentgenograms of the skull, AP view. Note the band-like craniectomy at the site of the coronal suture.



Preoperative roentgenograms of the skull, lateral view. Note that the superior part of the coronal suture still is open and is part of the still open anterior fontanelle. The greater part of the coronal suture (arrows) is closed. Age six months.



Immediate postoperative roentgenograms of the skull, lateral view. Note the band-like craniectomy at the site of the coronal suture.



The only treatment is, of course, operative. As long ago as 1890 craniotomy or linear craniectomy was suggested for this condition, but since it was used in microcephaly and incurable forms of idiocy the procedure fell into disrepute (Mount). Faber and Towne described in 1927 what has become the most popular operation for craniostenosis, and it is their operation which was used in this case. A more extensive morcellation of the calvarium was proposed by King in 1936 and has also been used extensively.

The exact type of operation matters little provided it is performed on the child before the effects of the increased intracranial pressure and of inhibited brain growth have become too far advanced and thus irreparable. There is no reason why it should not be performed as soon as the correct diagnosis has been established, even if it is apparent at birth. Clinical diagnosis is simply dependent upon the characteristic shape of the skull and roentgenographic confirmation.

The course of this case illustrates dramatically a number of points worthy of emphasis. This infant was admitted to a state institution in spite of the fact that the correct diagnosis had been made shortly

after her birth. This correct diagnosis was then ignored and the patient was admitted to the Winfield State Hospital, perhaps partially to ease an unpleasant social situation. Fortunately the condition was recognized shortly after admission and the proper steps were taken. The infant was operated upon early enough so that no ill effects upon her mental development resulted from the craniostenosis.

Photographs taken on November 25, 1957, almost 11½ years after operation, indicate that the child's appearance is rapidly approaching normal (an important consideration), and it has been well established that her mental development is proceeding normally. There can be no question but that, in addition to reversing this child's poor original prognosis for normal physical and mental endowment, early recognition and prompt correction of the anomalous condition have made it possible to discharge her from the institution and restore her to normal family life.

This case points up the responsibility that lies with the physician for prevention of mental deficiency. Craniostenosis is only one example of preventable mental deficiency. Cretinism, the deterioration of repeated uncontrolled epileptic seizures, and phenylketonuria are conditions that need no longer lead to



Postoperative photograph of the patient at age of two years, face.



Postoperative photograph of the patient at age of two years, half-profile view.

institutionalization. Better training of the physician in the field of pediatric neurology and active research in the causes and mechanism of the many types of mental deficiency will eventually lead to a drastic reduction in the number of children doomed to institutional life. With the advances that have already been made in this field through the combined efforts of pediatricians, neurologists, endocrinologists, and biochemists, more and more emphasis should be placed on prevention rather than training and rehabilitation.

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The authors wish to express their thanks to Colonel John B. Smith (U.S.A., Retired), former superintendent, Winfield State Hospital and Training Center, and Dr. George Lyons, Section of Neurosurgery, University of Kansas Medical Center.

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Under the benign bedspread of the ultimate tranquilizer, we will all come to rest. Gone will be the spur to invention, the drive to reform, the divine dissatisfaction that leads to progress. So we will rest, smiling at each other in the beatific calm of the ultimate tranquilizer, until some neighboring tribe, some rude and primitive people, move in on us. They will vanquish us with ease, because no one ever thought of giving the tranquilizer to our enemies as well as to our friends. And when the dust over our civilization stops being radio-active, a 30th century archeologist will find writ on the tombstone of our culture: "Here lies the tranquil man."—Editorial, *The Ultimate Tranquilizer*, *The Journal of the Medical Society of New Jersey*, November, 1957.

# Salpingography

## *Study of Use of Diatrizoate Sodium (Hypaque)*

KARL A. YOUNGSTROM, M.D., *Kansas City*

Aqueous organic iodide solutions have been used for operative cholangiograms many years with no untoward effects. The use of a similar solution for salpingography has recently been explored with such satisfactory results that the need for wider recognition of its advantages seemed sufficient justification for this report.

The iodized oils previously used, long the standard material for opacification of the female genital tract, are unsatisfactory to some degree for various reasons: (1) The oil spilled into the peritoneal cavity is slow to absorb and produces a granulomatous type of reaction.<sup>1</sup> (2) A late (24-hour) film is frequently required to demonstrate oil in the peritoneal cavity for verification of patency of the tubes. (3) The difficulty of injecting viscous oils has been overcome to some degree by a less viscous oil in which the ethyl ester has been substituted for the glycerol ester, but the iodized oil still does not have the advantages of water soluble material.

We have found the aqueous solution of acetrizate combined with polyvinylpyrrolidone (Salpix) to be rather deficient in opacity. The aqueous prophylidone (Dionosil) was used by some European workers<sup>2</sup> until they learned that the carboxymethylcellulose in it produced granulomas when it was spilled into the peritoneal cavity.<sup>3</sup> Another aqueous iodide solution was made viscous with acacia (Skiodan with acacia) and offered for salpingography, but from extensive use of acacia as a blood expander it has been learned that acacia is not innocuous. It is stored in the reticuloendothelial system and can produce the syndrome known as arabinosis. Consequently, Skiodan with acacia is no longer used for salpingography.

Preliminary intraperitoneal tests with mice of organic iodide solutions currently used for angiography indicate greater toxicity of all those concentrated solutions containing methylglucamine. This additive is said to be necessary for maintaining solutions of the more concentrated preparations. However, sufficiently opaque concentrations of these solutions which are not so unphysiological are available. The

one we have used most is diatrizoate sodium (Hypaque), 50 per cent. The concentration and opacity of this material allow it to overcome objections incident to use of the less concentrated and less opaque iodopyracet (Diodrast). We have found no justification for using a solution of greater concentration than 50 per cent, since this provides satisfactory visibility both at fluoroscopy and in films.

The technique of examination involves insertion of a special occluding cannula into the cervix under

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**A method for doing salpingography which is currently considered most satisfactory is described. The radiation of the gonads in this examination is considered safe. Specific indications and contraindications for the procedure are listed.**

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direct vision after a preliminary "prep" of the cervix with merthiolate. The radiopaque solution is injected under fluoroscopic control, and results are recorded with spot films taken in the antero-posterior projection and in both oblique projections. When the oviducts are patent the spill into the peritoneal cavity is apparent at fluoroscopy, and the injection is discontinued. The material spilled into the peritoneal

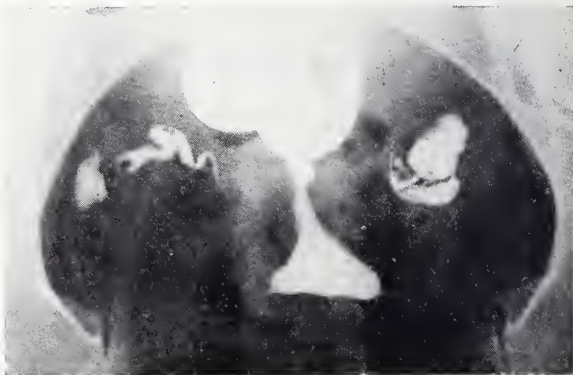


Figure 1. Normal salpingogram showing some bilateral spill into the peritoneal cavity.



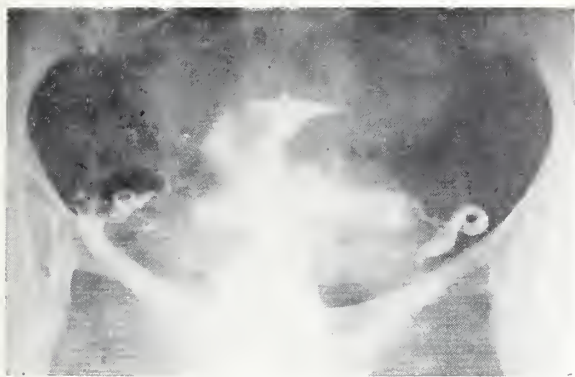


Figure 2. Normal salpingogram showing more diffuse spill into the peritoneal cavity.

cavity is gone in a few hours. Examples of the type of radiographs obtained by this method are seen in Figures 1 to 4.

Studies in which the procedure is considered of diagnostic value are those for tubal patency and uterine pathology.

Contraindications to the performance of this examination are: (1) infection, particularly in the pelvis, and (2) possible early pregnancy. To avoid the latter possibility, the examination should be done in the immediate postmenstrual period.

Although the ovaries are in the primary beam of the x-rays, they will receive only 0.5 to 1.5 roentgens in a properly performed examination with modern x-ray equipment. Image intensifiers will reduce this appreciably. The actual fluoroscopic time need not exceed one minute, and the spot films at 90 kilovolt peak deliver approximately 20 milli-roentgens per



Figure 3. Normal salpingogram showing excessive spill into the peritoneal cavity. Usually this situation is easily avoided.



Figure 4. Abnormal salpingogram with no oviduct demonstrated on either side. Dilated glands are seen in the cervix of the uterus indicative of endocervicitis.

exposure to the ovaries.<sup>5</sup> The chance that this amount of radiation could produce a detectable change in the natural mutation rate seems quite remote. This amount of diagnostic radiation is much smaller than unavoidable radiation received from cosmic sources and from radioactive materials in the ground. This unavoidable radiation during the first 30 years of life has been calculated to give three roentgens per person. The value of information to be gained from this or any other diagnostic x-ray procedure, however, should be carefully considered before exposing a patient to x-rays in the reproductive period of life, especially when the region to be examined contains the gonads.

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# L-Glutavite

## *Clinical Effect on Geriatric Patients in a Psychiatric Hospital*

KURT WOLFF, M.D., *Osawatomie*

Many years of clinical observation and experimental study involving large groups of geriatric patients in a mental hospital have led to the conclusion that two distinct pharmacologic approaches are desirable and necessary in this age group. Two over-all classes of patients must be distinguished: (1) those suffering from degenerative organic changes of the brain, and (2) those afflicted with the functional psychoses.

Tranquilizers have been shown to be capable of lessening tension and anxiety in the functional psychoses. Patients receiving them become less agitated and restless, sleep better, and are more readily amenable to specific psychiatric therapy, and, in the hospital setting, to group psychotherapy, occupational and recreational activities.

By contrast, such results are seldom obtained in patients suffering from one of the chronic organic brain syndromes, particularly senile patients with cerebral arteriosclerosis. Included in this group are patients who show typical symptoms of confusion and disorientation, impaired intellectual capacity, and decreased capacity of concentration and attention span, general apathy, retardation, lack of interest in their surroundings, in themselves, and in others. These are patients in whom stimulants of cerebral metabolism are clearly preferable and indicated.

Pentylene tetrazol, with or without nicotinic acid, has been given to geriatric patients in an attempt to halt their progressive deterioration. Some good results have been reported by Levy,<sup>4</sup> Shapiro,<sup>6</sup> Wolff,<sup>9</sup> and others,<sup>7</sup> but these results were neither remarkable nor well sustained over long periods. For this reason, a trial of a new medication, L-Glutavite,\* a combined cerebral metabolic stimulant and nutritive supplement, has been conducted in 30 hospitalized geriatric patients.

### Method and Results

Thirty hospitalized elderly patients were selected as representing a cross section of the geriatric patient population at this institution. The great majority, 24,

had on previous psychiatric evaluation been classified as suffering from the chronic brain syndrome associated with cerebral arteriosclerosis, or, in some cases where the objective signs of vascular disease were not greatly in excess of those usual in the age group, as associated with senile brain disease. The remaining patients included three with schizophrenic reactions and one each with manic-depressive reaction, involutional psychotic reaction, and mental deficiency (See Table I for details of classification and clinical findings). The psychological tests used to help establish these diagnoses included the Wechsler-Bellevue, Draw-a-Person, Bender Gestalt, and Rorschach procedures. There were 19 male and 11 female patients; their ages varied from 57 to 80, with a mean of 69.

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**A study of effects of administration of L-Glutavite was carried out in 30 geriatric patients at Osawatomie State Hospital. Results indicate that the product can be considered a useful drug in the field of geriatrics and that it is specifically indicated in patients who have suffered chronic senile or arteriosclerotic brain changes.**

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With the exception of digitalis in six patients suffering from arteriosclerotic heart disease with partial decompensation, all other medication was discontinued. One patient only (schizophrenic reaction, catatonic type) could take neither food nor medication. Following five electroconvulsive treatments, the medication was administered as in the remaining patients. The recreational and occupational activities of the patients remained unchanged, and every effort was made to introduce no alteration in their environment at the time of this clinical trial. The diet was not changed. Two short bouts of infectious disease, one a patient with bronchopneumonia and one with influenza, were treated medically without interference with the study.

Two double-blind studies were performed, one in a group of 10 patients (five female and five male—Group I) who were treated with L-Glutavite for a period of three months, after which they were put on placebo medication for one more month. The

Dr. Wolff is director of the Geriatric Treatment and Research Unit, Osawatomie State Hospital. He wishes to express thanks to L. Myers, R.N., M. Baffrey, R.N., and F. Powell, R.N., for assistance in follow-up studies.

\*Samples for an experiment with L-Glutavite were obtained through the courtesy of Gray Pharmaceutical Company, Inc., Newton, Massachusetts. L-Glutavite is now available from Crookes-Barnes Laboratories, Wayne, New Jersey.

TABLE I  
INDIVIDUAL RESULTS  
GROUP I

Patient	Age	Diagnosis	Condition before Therapy	Condition after Three Months of Therapy	Condition after One Month of Placebo	Over-all Improvement
K. L. (Male)	74	Chronic brain syndrome, associated with senile brain disease, with psychotic reaction.	Disoriented, confused, memory defective, apathetic, listless, delusional at times.	In better contact. Takes part in activities on the ward. Less confused. Memory slightly improved for recent events. Oriented.	Remains improved.	Fair
D. M. (Male)	70	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Disoriented as to time and place, memory defective, intellection poor, delusional.	Memory improved. Still delusional. Better appetite.	Remains improved.	Good
H. B. (Male)	69	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Disoriented, complains about headache, dizziness, confused.	Less confused. Takes part in activities. No more headaches. Better appetite. Gained weight.	Remains improved.	Good
R. J. (Male)	67	Schizophrenic reaction, schizoaffective type, chronic.	Disoriented to time. Suffering from temper tantrums, uninterested in environment.	Takes part in activities on the ward. Enjoys occupational therapy. Talks more often. Still irritable at times.	Remains improved.	Fair
J. H. (Male)	73	Chronic brain syndrome, associated with senile brain disease, with behavioral reaction.	Disoriented to time and place. Memory defective, intellection poor. Uninterested in surroundings. Combative at times.	More active. More alert. Still combative at times. Better appetite. Gained weight.	Remains improved.	Fair
R. B. (Female)	63	Involution psychotic reaction, with depressive features.	Listless, depressed, uninterested in activities, many somatic complaints.	More alert. More active.	Remains improved.	Fair
H. J. (Female)	70	Chronic brain syndrome, associated with senile brain disease, with behavioral reaction.	Disoriented. Memory defective. Apathetic.	Oriented to time. More active. Interested in activities on the ward.	Remains improved.	Good
A. C. (Female)	72	Chronic brain syndrome, associated with senile brain disease, with psychotic reaction.	Confused. Talks incoherently. Not interested in activities. Apathetic, delusional.	Less confused. In better contact. Works in O. T. Still delusional.	Remains improved.	Good
D. S. (Female)	68	Chronic brain syndrome, associated with syphilitic meningoen- cephalitis.	Disoriented. Memory defective. Intellection poor. Apathetic.	More alert. More interested in environment. Less ataxic gait. Speech defect less pronounced.	Remains improved.	Fair
M. W. (Female)	71	Schizophrenic reaction, paranoid type, chronic.	Confused at times, Not interested in activities. Combative at times. Memory patchy for recent events. Delusional.	Less confused. More interested in activities. Still delusional and at times combative.	Remains improved.	Fair



TABLE I (Continued)  
GROUP II

Patient	Age	Diagnosis	Condition before Therapy	Condition after Three Months Placebo	Condition after Three Months Treatment	Condition after One Month Placebo	Over-all Improvement
L. A. (Male)	68	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Combative, noisy, disoriented, confused, delusional.	No change.	No change.	No improvement.	None
W. E. (Male)	72	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Disoriented. Memory defective. Combative, delusional. Partially paralyzed.	No change.	More appetite. Gained weight. Memory improved. Better oriented. Walked more steadily. More active.	Remarkably improved.	Excellent
S. R. (Male)	76	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Confused. Talk rambling. Disoriented. Delusional.	No change.	Talked more coherently. Oriented to place. Took part in activities.	Improvement continued.	Fair
N. P. (Male)	73	Chronic brain syndrome, associated with senile brain disease, with psychotic reaction.	Disoriented. Not in control of B. M. Delusional.	No change.	No change.	No improvement.	None
S. T. (Male)	70	Chronic brain syndrome, associated with cerebral arteriosclerosis, with behavioral reaction.	Confused. Out of contact. Noisy. Disturbed.	No change.	No change.	No improvement.	None
T. O. (Male)	69	Chronic brain syndrome, associated with senile brain disease, without psychotic reaction.	Disoriented. Talks rambling. Apathetic. Memory defective.	No change.	Better oriented. More active. Talks less confused.	Improvement continues.	Fair
A. L. (Male)	77	Chronic brain syndrome, associated with senile brain disease, without psychotic reaction.	Disoriented. Out of contact. Talks rambling. Inactive.	No change.	Oriented to time. Talks more coherently. Interested in activities. Better appetite. Walks more steadily, less tremor.	Improved very greatly.	Excellent
F. L. (Male)	66	Chronic brain syndrome, associated with senile brain disease, with behavioral reaction.	Disoriented. Memory defective. Excited. Combative.	No change.	Improved in weight. Less tremor of hands.	Improvement continues. (Physically only)	Good

TABLE I (Continued)  
GROUP II

Patient	Age	Diagnosis	Condition before Therapy	Condition after Three Months Placebo	Condition after Three Months Treatment	Condition after One Month Placebo	Over-all Improvement
O. N. (Male)	63	Mental deficiency without psychotic reaction.	Low intelligence. No behavioral problem. Apathetic.	No change.	Slept better. Gained weight.	Improvement continues. (Physically only).	Good
B. S. (Female)	57	Schizophrenic reaction, catatonic type.	Shy, withdrawn, seclusive, mute.	Unchanged.	Delusional, excited. More confused. Doses reduced 50%. Unchanged.	Unchanged.	None
H. L. (Female)	70	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Confused, inactive, apathetic, delusional.	More interested in surroundings.	More active, less confused. Memory improved for recent events. Better appetite.	Improvement remains.	Good
F. D. (Female)	72	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Memory defective. Not oriented. Combative. Delusional.	No change.	Gained in weight and strength.	Improvement remains.	Good
A. R. (Female)	64	Chronic brain syndrome, associated with cerebral arteriosclerosis, with behavioral reaction.	Disoriented. Memory defective. Confused, noisy, excited.	No change.	Worse. More excited. Upset. Dose reduced 50%.	No change.	None
L. D. (Female)	62	Chronic brain syndrome, associated with cerebral arteriosclerosis, without psychotic reaction.	Disoriented. Rambling talk. Memory defective. Apathetic. Listless.	No change.	More interested in surroundings. More alert and active. Oriented to place better appetite. Gained weight.	Improvement remains.	Good
R. A. (Female)	80	Chronic brain syndrome, associated with senile brain disease, with psychotic reaction.	Out of contact. Confused. Incontinent. Listless. Delusional.	No change.	Less confused. In better contact. Took part in ward activities. More cheerful, but still delusional and incontinent.	Improvement remains.	Fair
B. E. (Male)	66	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Excited, noisy, resistive. Uncooperative, disoriented, confused.	Refused to take placebo.	Taken out of experiment.	---	---
R. N. (Male)	70	Chronic brain syndrome, associated with cerebral arteriosclerosis, with psychotic reaction.	Confused, apathetic, disoriented.	Died after 3 weeks of placebo because of coronary thrombosis.	---	---	---

TABLE I (Continued)  
GROUP II

Patient	Age	Diagnosis	Condition before Therapy	Condition after Three Months Placebo	Condition after Three Months Treatment	Condition after One Month Placebo	Over-all Improvement
N. F. (Male)	69	Chronic brain syndrome, associated with cerebral arteriosclerosis, without psychotic reaction.	Out of contact. Memory defective. Disoriented, disinterested in environment, delusional.	No change.	Worse. Hyperactive, noisy, aggressive, irritable. Allergic dermatitis. Dose reduced 75%. More quiet but no improvement.	No change.	None
W. R. (Male)	69	Manic depressive reaction, depressive type, with senile features.	Disoriented. Memory poor. Depressed. Listless.	No change.	More alert. Less depressed. Better oriented. Takes part in ward activities. Gained weight.	Improvement continues.	Excellent
M. A. (Male)	58	Chronic brain syndrome, associated with C.N.S. syphilis, with psychotic reaction, meningovascular type.	Disoriented. Memory defective. Intellectual capacity poor.	No change.	No change.	No change.	None

group of 20 patients (six female and 14 male—Group II) was given the placebo for an initial period of three months, L-Glutavite during the next three months, and finally placebo again for one month.

L-Glutavite was administered to each patient in the form of individual packets\* one to three times daily before meals in tomato juice.

The ward nurse in charge was the only person who knew whether the patient was receiving the active substance or the placebo. Observations and reports on each patient were made weekly and independently by the physician and by nurses who were themselves unaware of the type of medication that was being administered.

The physical condition of each patient was recorded weekly, with special reference to weight, appetite, strength, physical well-being, and the presence of toxic effects of any kind. The weekly psychiatric evaluation followed a special observation form modified from Menninger's *Manual for Psychiatric Case Study*.<sup>5</sup> Particular attention was paid to changes in:

1. Perception: Alertness, direction of attention, orientation, coherent or confused talk.

2. Intellection: Memory for recent and remote events, intelligence (knowledge), distortion of judgment, thought process (flight of ideas or retardation), thought content (dreams, phantasies, delusions).

3. Emotion: Prevailing mood, bluntness, apathy, fear, panic, worry, inappropriateness.

4. Action: Energy level, stupor.

5. Relations to self: Self concept, superego.

6. Relations to others: Flexibility, negativism, love-hate pattern, ambivalence.

7. Relations to environment: Work pattern, play pattern, social and religious interests, attitude to possessions, their own and those of others.

Individual results are described in Table I, and an over-all summary is provided by Table II.

Following treatment with L-Glutavite, all patients in Group I were improved with respect to their general status, perception, relation to others and relation to their environment.

This improvement was marked by contrast either with the period preceding treatment or with the period during which placebo medication was administered.

The improvement in perception, particularly in alertness and orientation, was obvious to all observers

\* L-Glutavite contains per packet:

	Gm.
Monosodium L-glutamate	3.5
Niacin	0.045
Thiamine mononitrate	0.0006
Riboflavin	0.0008
Ascorbic acid	0.030
Ferrous sulfate	0.011
Dicalcium phosphate	0.91



TABLE II  
RESULTS OF TREATMENT WITH L-GLUTAVITE

Classification	Group I			Group II		
	+	0	-	+	0	-
General	10	0	0	11	4	3
Perception	10	0	0	8	7	3
Intellection	2	8	0	2	13	3
Emotion	0	10	0	2	13	3
Action	9	1	0	7	9	2
Relation to Self	0	10	0	0	18	0
Relation to Others	10	0	0	7	8	3
Relation to Things	10	0	0	7	8	3
Physical Condition	4	6	0	8	9	1

*Explanation of symbols:*

- + = improved  
0 = unimproved  
- = worse

See text for definition of groups of patients and of classification of symptoms.

during the period of treatment. In regard to "relation to environment," it was evident that all patients in Group I improved in their work or play pattern and in their social interest generally, in parallelism to their improvement in "action." The patients who became more active took a more intensive interest in ward activities and occupational therapy and in recreational therapy programs. Later on, as they improved in regard to "relations to environment," their "relations to others" were also favorably modified by the formation of friendships and the establishment of better interpersonal relationships.

In Group II, three patients became worse, four did not show any change, three showed slight improvement, five a moderate one, and three improved remarkably. In this group of 20 patients, one died suddenly of coronary thrombosis during the first period of placebo medication. Another had to be removed from the group because of his uncooperativeness and his continuous refusal to take the medicine.

The three patients whose condition deteriorated after two months of medication with L-Glutavite became more confused, more noisy, upset, and excited; one also suffered from an allergic dermatitis. Their conditions returned to normal and remained on the same level as before treatment when the dose of L-Glutavite was reduced.

A marked improvement in physical condition, especially in regard to appetite, weight gain, physical

strength, and a general feeling of well-being, became evident in the great majority of the patients treated with L-Glutavite.

There was no significant difference in results between patients of different sex or age.

## Discussion

The method of classification adopted here makes it possible to distinguish clearly between the therapeutic effects of L-Glutavite on the various features of the patients' illness. Although our patients had been hospitalized for long periods of time with only minor ups and downs in the disease picture, the majority showed improvement in over-all condition (75 per cent), perception (64 per cent), relation to others (61 per cent), relation to environment (61 per cent), and action (57 per cent). On the other hand, relatively few showed improvement in intellection (13 per cent) or in emotion (7 per cent).

These results differ somewhat from those of Himwich, Wolff, Hunsicker and Himwich,<sup>2</sup> who reported that improvement in patients treated with monosodium-L-Glutamate was centered more upon action and emotion than perception. Another difference is that in two of their patients, decrease of delusions was noted, while in this study delusions remained completely unchanged in extent and in form. These variations may be due to the fact that the majority of patients studied by Himwich et al. were schizophrenics, while almost all our cases were older patients with chronic arteriosclerotic brain changes.

The results of this study largely confirm the report of Katz and Kowaliczko,<sup>3</sup> who noted in 44 per cent of their patients "good or excellent responses to therapy in regard to decrease in apathy, depression, and fatigue, and increase in appetite, motor activity, and sensorium." Our results were similar, except that great improvement in depressive reactions was not noted, whereas on the other hand not only motor activity but mental activity as well showed a marked increase. Comparable findings were also reported in the more recent study of Turlentes, Himwich, and Huckins.<sup>8</sup>

Barrabee and others<sup>1</sup> found in a series of aged female psychotic patients that medication with L-Glutavite proved superior to both pentylene tetrazol and vitamins alone, observing the greatest improvement in sociability, productivity and thought content, while the improvement in self-care, cooperation, effect, and mood was less outstanding. Insofar as "sociability" refers to greater participation and interest in ward activities, occupational therapy, and recreational programs, their observations confirm the results of this study at the levels of "action" and of "relation to environment and to others."

## Summary

A controlled trial of L-Glutavite, a nutritional supplement containing monosodium-L-Glutamate and large amounts of niacin, was conducted in 30 geriatric patients with chronic brain syndrome at Osawatomie State Hospital. It largely confirmed the results obtained with this preparation at other institutions. Serial observations demonstrated that L-Glutavite had a markedly favorable effect upon such factors as alertness, orientation, interpersonal relationships, and interest in occupational and recreational activities. It served to decrease severity and frequency of stupor, confusion, and verbal incoherence. It did not, on the other hand, exert a significant effect on memory, judgment, thought processes, or thought content in patients suffering from chronic arteriosclerotic brain syndrome. Side effects were infrequent, mild, and transient in character, disappearing promptly with reduction in or cessation of dosage. It would appear that L-Glutavite can be considered a useful drug in the field of geriatrics, and it is specifically indicated in cases of chronic senile or arteriosclerotic brain syndrome.

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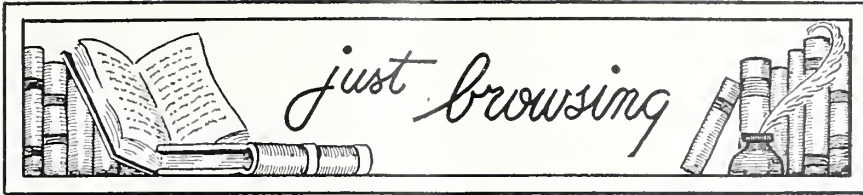
The future of medicine is good. We are told that the age barrier will soon be broken, and that we will reach the ages of the Bible, of over 100 to 150. Yes, we are told that the cure of cancer is just over the horizon, and we are told that heart disease and atheromatosis will soon be as obsolete as the dodo bird. We have fluorine in our water to prevent tooth decay. We have chlorine in our water to prevent intestinal disease. We have vitamins to prevent fatigue or tired blood, but what chemical can we have and will we have in our food and water that will prevent self-glorification and the creation of Hitlers, Napoleons, and Stalins?

*W. Bruce Schaefer, M.D., President*

*Medical Association of Georgia*

*Journal of Medical Association of Georgia*

*June, 1958*



The *Brooklyn Medical Journal*, in April 1906, discussed the economics of transportation as follows:

"Automobiles have undergone a rapid revolution in the past five or six years. The crude experiments placed on the market in 1900, with their noisy engines and awkward looking bodies, put together in a hasty and unscientific manner, resulting in a jolting ride when the car could be made to go, have been supplanted in the present year by cars that are very near the perfect state. . . .

"The automobile was a toy for the rich, when they were first introduced, and they needed a rich man to run one, not that the first cost was so great, but the "upkeep" was so large that it needed a fat pocketbook to keep one going. . . . The physicians were the first to use motor cars in their business. . . . Runabouts, or motor cars seating two, are the prevailing type, and many manufacturers make a special physicians' runabout."

The cost of one type of transportation was itemized as follows:

Standard doctor's buggy . . . . .	\$300.00
Cut-under carriage . . . . .	400.00
Single harness, hand made . . . . .	50.00
Double harness, hand made . . . . .	100.00
Two horses at \$200 apiece . . . . .	400.00
	<hr/>
	\$1,250.00

Maintenance included the following:

Oats, hay, straw for two horses . . . . .	\$240.00
Hire of man at \$20 per month . . . . .	240.00
Stable rent per year . . . . .	100.00
Shoeing two horses . . . . .	50.00
Harness repair, painting carriage, etc. . . . .	50.00
Sundries, brushes, blankets . . . . .	20.00
	<hr/>
	\$700.00

A good serviceable automobile, costing around \$1,200, was quoted as requiring these items for maintenance:

Stable rent for one year . . . . .	\$100.00
Gasoline . . . . .	60.00
Lubricating oil . . . . .	10.00
Batteries . . . . .	10.00
Chain . . . . .	15.00
Spark plugs . . . . .	5.00
Tires . . . . .	100.00
Man's services at \$20 per month . . . . .	240.00
	<hr/>
	\$540.00

"There may be worn or broken parts to replace," the *Journal* relates. "No one can say just what the expense will be. . . . It is possible for a car to go through a year, and be driven 7,000 miles, with very little expense in the repair line, especially if the physician is his own mechanic, or at least superintends the work. . . .

"As a time saver in getting around to see patients, and as a means of enjoyment, the motor car far outstrips the horse and carriage."



## PRESIDENT'S PAGE

DEAR DOCTOR:

There was much that was valid about Fundamentalism or any form of "old time religion"—not because of its intellectual content (which was largely in error) but because it provided reassurance, and satisfied the spiritual needs of a people not possessed of scientific information. With the development of science a hiatus appears between what men have learned of physics and biology and physiology and their need for spiritual understanding and reassurance. And for a time there is a dearth of spiritual experience—and a sense of uncertainty, disillusion, futility, and despair. The soul of man is starved.

There is much of this disparity in the modern practice of medicine, especially in the great clinics, and the hunger of the patient for sympathetic understanding too often goes unsatisfied.

This is not inevitable. It behooves the physician who would bring into focus the best in scientific medicine to remember that things spiritual are as much a part of the evolution of life and of the individual as are the chemistry and physiology of his body. It is a matter of faith that these spiritual values transmit themselves between all persons and perhaps most of all between physician and patient. This, too, the doctor owes to those he serves.

*Sincerely,*

A handwritten signature in dark ink, reading "Thomas P. Butcher M.D.". The signature is fluid and cursive, with a large, sweeping initial "T".

*President*

## EDITORIAL COMMENT

### Survey of Hospital Practices

The Committee on Hospitals sent to each hospital in Kansas a rather extensive questionnaire inquiring about its standards of professional practice. The questionnaire has been carefully prepared and reviewed by representatives of the Kansas Hospital Association and by the Executive Committee of this Society.

Information is requested on the subject of the relationship between the professional staff and hospital management. Questions are asked upon how staff members are appointed and whether unlimited privileges are allowed.

Hospital records are important to this questionnaire, and numerous items concern that subject. The committee is interested in learning whether there is a tissue committee and how it functions. Other questions relate to the use of the hospital by persons holding licenses other than those of doctor of medicine.

From the information received from these questionnaires, which will come from hospitals of all sizes, the largest and the smallest alike, will be prepared a summary of what appears to be the most satisfactory practice. The committee will then prepare a set of minimum standards for professional practice in hospitals. These will be far below the standards currently in practice in most hospitals, and certainly in all that are accredited by the Joint Commission on Accreditation of Hospitals. It is well known, however, that this major accrediting body has found it impractical to visit hospitals with fewer than 25 beds. Many Kansas hospitals are in this smaller category.

In effect, the Committee on Hospitals is asking the larger hospitals of this state to help prepare a set of standards that might voluntarily be accepted by the smaller hospitals. It is hoped, when these are adopted, they may serve to raise the standards of professional care rendered within hospitals and that this will become another in the significant series of public service projects that have been inaugurated by the Kansas Medical Society.

### New Medicare Contract

In the next few days a new Medicare contract will have been negotiated between the government of the United States and the Kansas Medical Society. Several changes are almost certain to occur as a result of this new contract, and, even though the matter is in doubt at this time, it appears reasonably certain that the following will be among the new provisions.

There will be a new fee schedule based upon the

system of relative values adopted by the House of Delegates in May. The exact monetary definition is undetermined as yet, but it appears certain that the relationship between the various services will be retained. The negotiating team for the Society is hopeful that the agreed upon fee schedule may represent a relatively high figure and that it may be the maximum allowable fee for each procedure. This schedule, if the Kansas proposition meets with approval in Washington, will be unpublished. Physicians will be advised to charge the fee they would normally charge a private patient in the \$4,500 income category. Those fees will be paid up to the point of the agreed upon maximum.

Also different will be the system of paying for fees for assistant's services. Instead of the payment of a flat prior-determined fee, such services for surgical procedures will be paid at a rate of 15 per cent of the fee allowable for the surgery in the schedule with a minimum of \$7.50.

Also new in the schedule is the solution of a problem that has been acute in relatively few areas of the state where someone other than the surgeon gives postoperative care. In such instances, according to the new contract, if it is agreed upon in Washington, the physician who does not render postoperative care will have his fee reduced by 15 per cent of the usual charge, which amount will be paid to the physician rendering postoperative care.

Many other considerations are involved, including the current problem in the Congress as to whether the Medicare program shall be continued on its present basis. There has been considerable criticism from civilian sources of the cost of care for dependents of service personnel. When care in government facilities is made to appear more economical, it is frequently because the full story is not told. Should the appropriation be continued, and should the program be carried forward next year, it is believed that the Kansas contract will contain the above changes. It is hoped these will make the program more acceptable to the physician and as a result more beneficial to the patient.

### Medical Assistant Enrichment Course

Who is the medical assistant? What is she that you ask her to care for the appearance and the management of your office? What is she that you entrust into her keeping the financial records of your practice?

Who is the medical assistant? She is that servant of medicine who extends the physician's usefulness beyond anything he could do alone. She makes the appointments and practices within her own very special ability the art of waiting room etiquette. She is

the mirror of your integrity and of your ability and of your interest in the ill as human beings.

She adds efficiency to your practice. She is the beginning of your success—or your failure—as a doctor of medicine, and the difference lies in the degree to which her services are effective.

Viewing this subject in the coldest analytical terms, is it not reasonable that an investment to improve her services will reap dividends for you? If that argument is false, then there has never been value in training a receptionist for any industry or a hostess for an airline or any other person because nowhere is an employer more at the mercy of and at the same time more indebted to his employee.

Because of these reasons, because the Kansas Medical Society believes the medical assistant is interested in the opportunities of her specialized profession, a course has been prepared at the University of Kansas in Lawrence during the first week in August to help her do her job for you more effectively.

It is the studied opinion of your Society that this course is in the personal best interests of each practicing physician and that one assistant from each office should attend. The course is designed to increase her services to you, and therefore the investment should be your own for your own benefit. It is hoped that each member will consider this when the announcement reaches him and that he will send one assistant to attend this course. It appears this would be a selfish and an easy decision to make.

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### Heart Association Meets

The annual meeting of the Kansas Heart Association was held at Emporia late in May and the following officers were named: president, Dr. Roscoe F. Morton, Arkansas City; president-elect, Dr. L. E. Peckenschneider, Halstead; vice-president, Mrs. Thurlow West, Topeka; secretary, Mr. Frank Sullivan, Topeka, and treasurer, Mr. Willard Breidenthal, Kansas City.

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### Texas Drops Medicare

The House of Delegates of the Texas Medical Association, after long and spirited discussion, voted 107 to 46 to withdraw from its contract with the Defense Department under the Medicare program for government-financed treatment by civilian physicians of dependents of servicemen on active duty. Texas is the first of the 46 participating associations to withdraw from the program. Ohio and Rhode Island were the only two states not participating.

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### Dr. Hood Resigns

Dr. Thomas R. Hood, executive secretary of the Kansas State Board of Health, has resigned that

position to begin work on August 1 as associate director of the American Public Health Association in New York City. His successor in Kansas has not been appointed.

At a meeting of the board at which Dr. Hood presented his resignation, Dr. Fred B. Ogilvie, Kansas City, a veterinarian, was elected president for the coming year and Mr. Richard E. Stone, Wichita, a hospital administrator, was named vice-president.

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### Sedgwick County Society Elects

Officers of the Sedgwick County Medical Society for 1959 were elected at a meeting held in Wichita on May 13. Named were: president, Dr. Norton L. Francis; vice-president, Dr. Dean A. Huebert; secretary, Dr. Mack A. Carter; treasurer, Dr. Gary B. Wood. Chosen as censor for a three-year term was Dr. W. H. Browning, and named to the board of directors for three-year terms were Dr. Edward S. Brinton, Dr. John K. Fulton, and Dr. D. Cramer Reed.

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### Interest in Science Fair

A continuing interest in students who participated in the 1958 science fair in Topeka was demonstrated recently when two bus loads of high school boys and girls made a three-day trip to Chicago to visit points of scientific interest without expense to themselves. The trip was financed by 41 Topeka physicians and 28 other individuals and organizations.

The 69 students, accompanied by five teachers, visited the Museum of Science and Industry, the Adler Planetarium, Field's Museum, the aquarium, and downtown Chicago. All qualified for the trip by (1) having had an entry in the Topeka Science Fair; (2) being possessed of good character, in the opinion of faculty members; (3) maintaining satisfactory grades in all subjects studied; (4) having an interest in science as a possible major study in the future.

After the trip the physicians entertained the 41 students they had sponsored at a dinner party at the Jayhawk Hotel, Topeka.

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Dr. Michael E. De Bakey, chairman of the Department of Surgery, Baylor University College of Medicine, has been appointed to the National Advisory Heart Council, according to a recent announcement of the Department of Health, Education, and Welfare. Dr. De Bakey is an associate editor of *American Surgeon*. As a member of the national council he will make recommendations to the Surgeon General on programs of the institute and will review requests from non-federal institutions and individuals for research and teaching grants in the field of diseases of the heart and circulation.



## Maternal Death Study—Case History

The patient was a 37-year-old gravida three, para two. Cause of death was stated as "cardiac failure (one week) due to rheumatic heart disease (three years?)," "pregnancy" and "subacute bacterial endocarditis." The pregnancy was of five months duration, and postmortem section resulted in the delivery of a one pound, five-ounce stillborn infant.

The first pregnancy occurred three years prior to death, following 15 years of marriage. The infant was stillborn, reportedly attributed to cephalopelvic disproportion. The second pregnancy was delivered by section, a normal term infant resulting.

History revealed no illnesses except a suggestion of congenital syphilis discovered three years prior to death and treated with a course of bismuth and arsenic and courses of penicillin during the previous pregnancies.

Prior to the terminal phase, the patient had mild dyspnea. Three weeks before death, weakness, dry nocturnal cough, increased dyspnea (occasionally necessitating sitting up at night) were noted, and the attending physician prescribed some vitamins. Nine days before death, hemoglobin of 50 per cent was discovered and she was hospitalized for three days, receiving one pint of blood by transfusion.

Eighteen hours after dismissal from the hospital, she developed tachycardia and fainted. She was hospitalized and given oxygen, Crystodigin and quinidine. Failing to respond, she was transferred to another hospital for management of congestive heart failure. The examination revealed heart enlargement with the PMI in the sixth interspace, a grade three systolic murmur, thrill over the precordium, grade two diastolic flow, splinter hemorrhages under four nails, and enlargement of the liver to one and a half inches below the costal margin. Blood cultures grew numerous colonies of alpha streptococci showing sensitivity to penicillin and other antibiotics.

Treatment consisted of digitalization; massive doses of penicillin and streptomycin (started on the second day after blood cultures were reported); phlebotomy; oxygen; and rotating tourniquets. She progressed downward and died on the third day.

**COMMITTEE FINDINGS: MATERNAL DEATH, NON-OBSTETRICAL; PREVENTABLE.** In the light of the medical history, it was felt that the original attending physician did not make a sufficiently vigorous attempt to determine the cause of the patient's progressively increasing dyspnea, orthopnea, cough, and weakness. Therefore, the preventability should be assigned to him. The question was raised as to the advisability of waiting a day, in a desperately ill patient, on the report of blood cultures before starting intensive antibiotic therapy.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

## Acute Poisoning

At times the practitioner is faced with the problem of attending a patient who has been poisoned by ingestion of an unidentified substance—at least at the onset the agent may be unknown. Some type of history suggesting the causal influence of a poisonous agent must be obtained. The diabetic patient in coma, for instance, may have taken a potential poison, but the prime requisite in this instance is recognition of the diabetes. If the patient exhibits signs of toxicity, measures to preserve life must be undertaken while efforts to identify the toxic substance or disease process proceed independently.

In childhood most of the problems arise from the accidental—usually experimental—ingestion of poisons. Of paramount importance then is the removal of the toxic material from the body. This is best accomplished by lavage with the stomach tube. Plain water or normal saline may be successfully employed as the wash. Twenty to 30 rinses with a four- to six-ounce volume of wash at a time will usually suffice. If, however, it can be determined that a corrosive acid or alkali has been taken, a tube should not be used.

If facilities for lavaging are not available at the time, an emetic may be used, but less dependable results are obtained in this manner. As its action depends upon its ability to irritate the stomach mucosa, soapy water or a mixture of one teaspoonful of powdered mustard in a cup of warm water will produce results. If the individual has an active gag reflex, the finger in the throat may mechanically stimulate vomiting. Apomorphine is the best drug available to produce activity of the medullary vomiting center by direct stimulation. If the poison is a central nervous system stimulant, temporary aggravation of the symptoms may follow its use, while the measures may be totally ineffective if the central nervous system is markedly depressed. Care must be taken in all instances to protect the patient from possible aspiration effects.

Specific neutralizing antidotes may be employed for specifically known poisons in the stomach and intestinal tract, but in many instances this union is not a stable one, and after the material has passed the pylorus the toxic agent is released from its bond and may be in an absorbable state. A saline cathartic can be used to hasten the passage from the intestinal tract of any such material. Alkaloids are precipitated by strong tea. Heavy metals are rendered less toxic, due to slowing down of the rate of absorption, by milk and egg white. Flour and starch, because of their colloidal nature, likewise slow down absorption of all types of poisons. After poison is removed from the gastrointestinal tract, that remaining in the tissues must be eliminated. As removal from the intercellular areas can occur only if the circulatory system operates efficiently, vasomotor collapse must be watched for and combatted with appropriate stimulants and intravenous fluids. Likewise the physician must exercise vigilance to prevent central respiratory center depression and to maintain an adequate airway.

Specific treatment for the intoxicant follows the general measures mentioned. Identification may pose a problem as new and unfamiliar commercial products are often involved. Manufacturers are now becoming less reluctant to reveal the toxic potentialities of their wares as facilities for properly dispensing this information come into being in the form of Poison Control Centers. In our state, Kansas City, Manhattan, Salina, Topeka, and Wichita have, or are in the process of establishing, such centers. It is hoped that they will be of value both to the poisoned patient and his physician throughout Kansas.

One of a series of articles prepared by the Committee on Child Welfare of the Kansas Medical Society.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

After five months of almost no action whatever on health-medical bills, Congress turned toward them late in the session, with the result that quite a number may be passed before the expected mid-August adjournment.

Most important, the House Ways and Means Committee held two weeks of hearings on the Forand bill and other social security issues. The Forand bill is a highly controversial piece of legislation that first came before Congress in another form six years ago but on which no action has been taken. The bill, strongly opposed by the American Medical Association and most other professional groups, would offer up to 120 days a year of hospital-nursing home care plus surgical services to social security beneficiaries.

Critics of the Forand bill list among their principal objections that the age line couldn't be held once the program was set up, and that the result eventually would be total national compulsory health insurance.

There was no indication from the committee whether it really was serious about the Forand bill or was admitting testimony on it merely because there was no easy way to stop such testimony once it was decided to open up the social security program. There was evidence that the committee probably would give priority to increases in public assistance payments, in view of the unusually large numbers of unemployed.

There was also an unexpected flare-up over Medicare, the military dependent medical care program that has been in effect for 18 months. Here the House Appropriations Committee, acting on misinformation, decided it would save tax money by cutting down on funds for the civilian phase of Medicare, thereby forcing more dependents to use military hospitals, which already care for about 60 per cent of them.

However, before the money bill passed the House, proponents of the cut were convinced that they might have gone too far. They agreed to adopt in conference any reasonable amendments that might be worked out with the Senate.

American Medical Association, American Hospital Association, and other professional groups carried on the fight to save Medicare.

Late in the session, Senate committee decided to approve FHA-type mortgage insurance for proprietary nursing homes. This proposal had been supported by the American Medical Association. Speaking for the Association, Dr. R. B. Robins told the senators that most of the aged population needs a certain amount of skilled nursing and medical care, but not necessarily expensive hospital care. He said that if more and better nursing homes were built, one of the major problems of the aged population would be solved.

Congress also indicated it would enact a number of other health bills, including the following:

A three-year extension of the Hill-Burton hospital construction program, with an amendment to allow loans in place of grants to institutions that objected to direct government aid for religious reasons.

Salary increases for medical personnel in Veterans Administration and general pay raises for the military, which would benefit doctors in uniform.

Authorization for grants totaling \$1 million a year to the nation's schools of public health; this was amended to rule out use of the money for ordinary operating expenses.

A public works program, under which communities would be eligible for grants to build schools, hospitals, nursing homes and other facilities.

### Notes

Congressmen frequently sound out voter sentiment through the well-used poll method. A recent one by Rep. Harold Collier (R., Ill.), who comes from Chicago, turned up some interesting views on the question of whether the social security system should be used to finance medical care to all those under the program. Opposed were 73 per cent, favoring were 26 per cent, and only 1 per cent had no opinion. On the question of expanding mandatory social security, the response was 47 per cent yes, 48 per cent no, and 5 per cent no opinion.

The National Health Survey has found in a preliminary study that 25 million persons in the country were injured badly enough in the second half of 1957 to require medical attention or to limit their activities for at least a day. Home accidents led the cause of injuries, 40.3 per cent; work accidents, 16.7 per cent; motor accidents, 9.8 per cent, and others (including violence), 33.1 per cent.

Rep. Thomas Jenkins (R., Ohio), who is planning to retire from Congress, has been praised by Senator Bricker for his important contribution in the field of legislation for the self-employed. He is the author of a bill to permit physicians and others to defer income tax payments on funds paid into annuity plans.



## BLUE SHIELD

### Blue Cross-Blue Shield and Competition

Prepayment of the cost of health care, even in increasing amounts, is here to stay. However, the public has not yet indicated a clear preference for any of the three competing approaches to prepayment:

1. Compulsory, tax-supported, medical care; this is called the government approach.
2. Experience-rated contracts which are underwritten by insurance companies; this is called the insurance company approach.
3. Community-rated plans, sponsored by physicians, hospitals, and civic leaders; this is called the Blue Cross-Blue Shield approach.

The government approach, of which Medicare is an example, will be resisted successfully as long as the public believes that free enterprise makes available to all segments of the population adequate coverage at acceptable rates. Assuming that free enterprise does measure up to the task, this discussion will be limited to the struggle between the second and third approaches.

The public is becoming aware of the fact that insurance companies slant their offerings to preferred risks. This has the effect of siphoning the good risks out of the general population. Generally speaking poor risks—groups as well as individuals—are left to shift for themselves. Ultimately they must turn to the community-rated plans for protection.

So far Blue Cross-Blue Shield has competed with moderate success against insurance companies for selected or preferred risks. This is due in part to adoption of a modified form of experience rating, also tax exemption granted by the legislature to non-profit-making health service corporations. But the main competitive strength of the community approach is found in the economies which derive from Blue Cross-Blue Shield's relationships—motivational as well as contractual—with member hospitals and participating physicians.

We believe that coverage for poor risks is the key to the problem of furnishing prepaid care through private enterprise. However, it may be that Blue Cross-Blue Shield has reached its capacity in shouldering the increasing weight for poor risks, particularly the aged. At this juncture it would seem that preservation of free enterprise in prepayment calls for either (1) insurance companies to accept their share of poor risks, or (2) Blue Cross-Blue Shield to enroll more of the select groups so as to achieve a more balanced cross-section of health.

The first possibility is unlikely because of the intramural competition between 800 or so insurance companies. There may be socially responsible companies which would like to include retirees and other poor risks, but they could not afford the rate advantage this would give competitors who care only for free-wheeling enterprise. Consequently we find retiree coverage in relatively few groups, only those which expressly request the insurance company to rate the inclusion of their retirees.

Achievement of the second possibility requires a thoughtful attitude on the part of management of the preferred groups, and on the part of labor where the coverage is negotiated. Both should reflect on the long-range consequences to American industry if government should take over prepayment due to the failure of private enterprise in covering the poor risks adequately. Many of the preferred groups might be willing to forego the temporary gain from experience-rated contracts and subscribe to community-rated plans in which the younger, healthier members pay a little more than their share in order to make coverage available to the aged and other poor risks at rates which all can afford. Doctors and hospitals should let the preferred groups know that the poor risks, especially the aged, generally cannot pay their own way. At the same time it should be made clear that enrollment of the poor risks is essential to the success of voluntary prepayment.

Doctors and hospitals should also make known their commitment to the success of voluntary prepayment. It is their commitment which sustains the community approach. Preferred groups should be made aware of the fact that participating physicians and member hospitals assume a real and definite financial risk in their sponsorship of Blue Cross-Blue Shield. They would then understand that doctors and hospitals have a real concern in solving the problem of adequate coverage for the aged and other poor risks. More important they would come to realize that any significant economy in coverage—even in the short run—will not be found in experience-rated contracts toward which doctors and hospitals maintain a laissez-faire attitude. Rather it rests in those contracts for the performance of which doctors and hospitals have accepted responsibility.

Thoughtful consideration of the over-all problem sometimes is hindered by an ideological tactic of those who oppose the community approach. Simply by calling Blue Cross-Blue Shield "socialistic" they create a formidable block in the minds of some of the leaders of groups. "They claim to be non-profit. They get away with not paying taxes. They even force hospitals and doctors to discount fees." Such remarks about Blue Cross-Blue Shield easily create

for some people an image not only of "unfair competition," but even of "an enemy of free enterprise."

In our society a part of the profits from business enterprises is preempted, by taxation, to provide for many agencies—such as public libraries—which contribute to the welfare of the community. However, there are some community service agencies—such as the Menninger Foundation—which are able to finance their programs entirely from the support of voluntary followers. These voluntary agencies are recognized under the law as being benevolent and are declared exempt from taxes so long as their resources are used solely to advance the humanitarian purpose for which they were founded. Blue Cross and Blue Shield were founded in order to lighten the financial burden of sickness. Our hospital system is based on the voluntary cooperation of the medical profession and the public in solving a community problem. Similarly doctors and hospitals organized Blue Cross and Blue Shield to serve a community purpose. These organizations have no other reason for being. And if Blue Cross-Blue Shield are not allowed to serve the community purpose in terms of the community need, then they should be abandoned or their character changed to permit them to meet competition on an equal basis.

In other words, Blue Cross-Blue Shield should neither have special support from hospitals and doctors, nor special obligations to (1) cover the aged and other poor risks, or (2) maintain high standards of quality in their coverage.

With respect to quality of coverage, Blue Cross-Blue Shield benefits are determined by medical considerations rather than financial. The public is learning that prepayment influences the delivery of medical care—when, where, who, why, and how it is given. Blue Cross-Blue Shield recognizes only approved hospitals and only doctors licensed to practice medicine and surgery. Prepayment, as exercised through Blue Cross-Blue Shield, should not become a contributing cause to any deterioration in the quality of medical care in this country.

Finally, the preferred groups, in pondering the most effective approach to prepayment, should avoid the emotionalism inherent in the question of supporting either the profit-making approach or the non-profit-making approach. Both conform with free enterprise which is defined as "the doctrine or practice of a minimum amount of government control of private business and industry." The question resolves itself into one of deciding which approach is most likely to satisfy the needs of the community.

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A total of 38,700 Americans were killed in 1957 traffic accidents; 2,525,000 were injured.

## Teachenor Memorial Fund

A memorial fund has been established to honor the late Dr. Frank Randall Teachenor who not only helped pioneer the specialty of neurological surgery but was widely known as a teacher, physician, and humanitarian. Under the organization of a Teachenor Memorial Committee, contributions are being received to build a Frank Randall Teachenor Memorial Operating Theater in the new Research Hospital Medical Center at Kansas City, Missouri. It was decided the fund, while national in scope, should be applied to a facility that would maintain a working memorial in the community that Dr. Teachenor served.

The committee hopes to contact friends who might wish to participate in establishing this memorial. Anyone wishing to do so may make a contribution to the Frank Randall Teachenor Memorial Fund Committee in care of the Research Hospital, 23rd and Holmes Streets, Kansas City, Missouri.

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## Golden Belt Medical Society Meets

A meeting of the Golden Belt Medical Society was held at the Manhattan Country Club on Thursday, July 10, with members of the Riley County Medical Society as hosts. The program included a panel discussion on "Therapy of the Patient with Peptic Ulcer" with Dr. F. P. Thornton, Concordia, as moderator. Participants were Dr. Henry S. Dreher, Jr., Salina; Dr. Robert Schellinger, Emporia, and Dr. Walker Butin, Wichita.

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## Committee Studies Basic Programs

One of the first projects of the Committee to Study A.M.A. Objectives and Basic Programs will be to send out a questionnaire inviting suggestions and criticisms of the Association. This questionnaire will be based on the following four points which were listed by the House of Delegates when the committee was organized last December: (1) redefining the central concept of objectives and basic programs; (2) placing more emphasis on scientific activities; (3) taking the lead in creating more cohesion among national medical societies, and (4) studying socioeconomic problems.

The questionnaires will be sent to state and county medical societies, specialty groups, other national medical organizations, and a probability sample of more than 3,000 physicians chosen systematically from the new A.M.A. directory. The latter sample will include both A.M.A. members and non-members.

# Tumor Conference

## *Bilateral Ovarian Carcinoma*

Edited by **THOMAS J. FRITZLEN, M.D.**

Mr. Manning (Medical Student): This case concerns a 65-year-old gravida ii, para ii, colored female who was admitted to the hospital on September 16, 1957, with chief complaints of painless vaginal bleeding and abdominal swelling.

Her present illness began with the sudden onset of vaginal bleeding on February 21, 1957. Her menses had begun at age 8 and had ceased at age 45. She was examined in the outpatient department on March 1, 1957, and a tentative diagnosis of degenerating uterine fibroids was made. Vaginal bleeding continued and she was hospitalized in mid-April, 1957, at which time pelvic examination under anesthesia, cervical biopsy, and dilatation and curettage were done. The impression of the examiner was that she had uterine fibroids with the uterus enlarged to the size of a five months' pregnancy. The surgical pathology report was chronic cervicitis and endometrium showing continued estrogenic effect. She was discharged to be followed as an outpatient. Vaginal bleeding continued in small amounts and in June of 1957 she began to notice a sense of heaviness and swelling in her abdomen. Abdominal swelling increased steadily, vaginal bleeding continued, and she was admitted to the hospital on September 16, 1957. Positive physical findings were confined to the abdomen and pelvis. The abdomen was distended, a fluid wave could be elicited, and nodular, non-tender masses were palpable in both lower quadrants. Edema of the vagina was apparent on pelvic examination so that the cervix could not be visualized, though by palpation it was felt to be displaced anteriorly. There were cystic masses in the cul-de-sac and in both parametrial areas. Laboratory studies were normal except for x-ray studies.

Dr. Robinson: What were the pertinent x-ray findings?

Dr. Davidson: An intravenous pyelogram on September 17, 1957, showed hydronephrosis of the left kidney. The ureters were not visualized in any of the films. Barium enema examination the following day showed elevation of the sigmoid colon and the cecum.

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Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and the Kansas Division of the American Cancer Society. Dr. Fritzlen is a Trainee of the National Cancer Institute.

Dr. Robinson: What were the findings at operation?

Dr. Quint: Operation was performed four days after admission. There were 3,000 cc. of straw-colored fluid free in the abdominal cavity. There were tumor masses of both ovaries, each extending two or three fingerbreadths above the umbilicus. These masses were relatively free in the abdomen and fairly well encapsulated, though with projections of tumor through the capsule. No tumor was palpable in the liver or elsewhere in the upper abdomen, but there was apparent tumor in both lateral gutters and palpable tumor nodules in both uterosacral ligaments. The uterus was small and situated between the two ovarian masses. There was tumor extending over the top of the uterus and involving the dome of the bladder. Our gross diagnosis was bilateral ovarian carcinoma, with abdominal carcinomatosis and ascites.

Dr. Robinson: What were the pathologist's findings, Dr. Helwig?

Dr. Helwig: The ovaries together weigh 3,500 grams. Each is a fairly well encapsulated, mixed solid and cystic tumor mass without evident extension through the capsule. There certainly must have been such extension, however, because of the metastases in the peritoneum and because microscopically there are metastases within the uterine tubes. The microscopic picture is of a cystadenocarcinoma of the ovary. There are cysts lined by atypical cells, and in some areas tall columnar cells suggest a pseudomucinous component. Other areas present cysts with extensive papillary ingrowths typical of serous cystadenocarcinoma. In many areas there is invasion of these epithelial cells through the wall out into surrounding tissue. Both serous and pseudomucinous tumors have a similar origin from germinal epithelium, and both patterns often occur in the same tumor as this case well demonstrates.

Dr. Robinson: Would you discuss this case further for us, Dr. Spanos?

Dr. Spanos: In retrospect there are a number of points in this case that can be brought up for constructive discussion. This woman, who was 20 years past her menopause and with recent vaginal bleeding, had a work-up which included dilatation and curettage, cervical biopsy, and pelvic examination under anesthesia, and she was diagnosed as having



uterine leiomyomas. An unanswered question is why the endometrium showed continued estrogenic effect, and even today we have no good explanation for this finding. With this unanswered question and with continued vaginal bleeding, she probably should have had an exploratory laparotomy some months earlier than she did have.

In September, 1957, with bilateral lower quadrant masses and ascites, the diagnosis of ovarian neoplasm, probably malignant, was apparent, and pelvic examination only confirmed this impression. Apparently in April, 1957, when she was previously examined, these tumors were hard enough and sufficiently close to the uterus that they were interpreted as leiomyomas.

It is not infrequent that ovarian tumors are mistaken for uterine leiomyomas, and whenever there is a real question as to the nature of the mass, particularly in view of the poor prognosis of ovarian carcinoma, an exploratory laparotomy should be done. The five-year survival of patients in this hospital with ovarian carcinomas that have projected through the capsule approaches zero, and in those patients in whom there has not been apparent projection the five-year survival is approximately 30 per cent.

Dr. Robinson: Is it true, Dr. Spanos, that some patients with ovarian carcinoma and peritoneal implants run a good course for a long time when both ovaries are removed?

Dr. Spanos: Regression in some cases of metastatic lesions after removal of the primary tumor and the pelvic organs has been reported by some gynecologists. It is more likely that such regression as may occur is due to the postoperative x-ray therapy which nearly all of these patients receive. The patient under discussion is receiving such therapy and may well have some regression of her disease. In time, however, her tumor will undoubtedly recur.

Dr. Robinson: In summary, this is a patient with recurrent vaginal bleeding 20 years after her menopause. In such a case, definite and sometimes extensive measures to learn the reason for the bleeding must be undertaken, even sometimes including laparotomy.

## References

1. Randall, C. L., and Hall, D. W.: Results of the treatment of ovarian malignancies, *Am. J. Obst. & Gynec.* 63:497-510, 1952.
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In 1957, 1,330 Americans were killed in train-car crashes. In the same year 53,000 Americans were injured in car-bicycle mishaps.

## New President of A.M.A.

In taking the oath of office as 112th president of the American Medical Association June 24 in San Francisco, Dr. Gunnar Gundersen called attention to the physician's obligations on the international scene. The 61-year-old La Crosse, Wisconsin, surgeon said: "As both physicians and citizens, we must see that medicine plays its full role, not only in promoting better world health, but also in helping the search for brotherhood and peace."

As American citizens, Dr. Gundersen said, "our first duty is to this country. But as members of the brotherhood of man, we also have a duty toward all men who yearn for freedom, dignity and peace." He further pointed out that "medicine can play a vitally effective part in bringing reality to the dream of world peace. For medicine, despite the designs of politicians or dictators, is above the harsh conflicts of ideologies and power policies. Medicine, like religion, speaks a universal language which passes all barriers of race, creed, color and nationality."

Dr. Gundersen did his preparatory school work in Oslo, Norway, and returned to the U. S. to obtain his B.S. degree from the University of Wisconsin in 1917 and his M.D. from Columbia University in 1920. He is a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons and the International College of Surgeons, a member of the Council of the World Medical Association, and a member of the American Public Health Association.

## Patent Sought on TV Development

A simplified method of scrambling medical telecasts for doctors over commercial or educational television facilities without closed circuits has been developed at the University of Kansas Medical Center. The center is applying for a patent on the electrical coding technique devised by Dr. Michael R. Klein, a bio-physicist.

Dr. David S. Ruhe, director of the center's audio-visual education, said the device differs from the synchronization scramble used in toll television and has marked advantages. Under the plan televised images are blotted out at the studio and then resorted in the receiver. It is planned that a doctor having such a device could tune in on teaching programs carried part time on commercial stations or full time by educational stations.

Speeding was blamed for 13,200 deaths on United States highways in 1957.

# Emotional Problems

## *Discussion of Feelings in Later Life*

HOWARD E. GARD, M.D., *Kansas City*

During the past 100 years the average expectancy for life has gradually been increasing in this country. In 1850 the average life expectancy at birth was 40 years, and there were approximately 1,000,000 individuals who were over the age of 60. By 1954 the average life expectancy had risen to 70 years and there were more than 18,000,000 people in our population who were over 60 years of age. It is estimated that there will be 21,000,000 individuals over the age of 65 by 1975.<sup>40</sup>

This growth in the number of elderly people has had a profound effect upon the culture, industrial organization, government, and medical profession of this country. Magnitudinous problems have arisen which as yet have no satisfactory solutions.

If we are to deal with these problems intelligently, we must learn what and why physical and mental changes occur in aging persons. Only through this knowledge can sound policies concerning the management of old age be formulated.

In this paper the mental and emotional problems of elderly people will be discussed.

### **What Is Old Age?**

In order to discuss the problems of aging, and especially those problems concerned with adjustment to aging, one must have an adequate definition or concept of what comprises old age. This definition or concept is exceedingly involved and complex.

From the time of Cicero, old age has been regarded by some as a disease. Cicero believed that the decline in strength and the other degenerations characterizing old age were due to the vices of youth.<sup>45</sup> Plato's philosophy of old age was . . . ". . . For certainly old age has a great sense of calm and freedom; . . . The truth is, Socrates, that these regrets and also the complaints about relations are to be attributed to the same cause, which is not old age but men's characters and tempers: for he who is of a calm and happy nature will hardly feel the pressure of age but to him who is of

an opposite disposition youth and age are equally a burden."<sup>45</sup>

Sir Clifford Allbutt wrote, "The ages of people should not be counted by the revolutions of the earth around the sun, but rather, by the revolutions of their own morbid processes."<sup>45</sup>

All the above statements contain much truth; however, there is still no general agreement as to what constitutes senescence, but whether it is a progressive disease, or is due to an inherent property of the germ plasm, is merely academic. One fact that is true is that in the early years the tissues and energy reserves are an expanding economy which grows, produces, and becomes greater. At some point a maximum development is reached from which begins a gradual decline until death. Somewhere between the acme of development and the end point, there is a period which marks the onset of old age.

This period is poorly marked and is dependent upon the measuring rod and the purpose of the evaluation. Thus, the deciding factor may be the degree of tissue degeneration, industrial usefulness, or the socio-familial attitude operative in the particular culture, rather than the exact chronologic age of the person. Unfortunately at present an individual has little to say about his age status. This is decided for him by industry, government, or society; e.g. one day satisfactory and the next "too old."

The position of an elderly person in present society is not an enviable one, for he is a member of a group which tends to be resented, regarded with ill-concealed impatience, and is shunned socially. He is more often viewed with pity than accepted with sympathetic understanding. During the years that adjustment capacities are waning, as a result of declining physical and mental powers, and in part because of these declines, the elderly person must strive to maintain emotional security. Often faced with economic insecurity and having lost the particular position which had been important in sustaining self-esteem and in earning the regard and affection of others, he may find the task of preserving dignity and self-respect somewhat difficult.

### **Emotional Problems**

1. *Sociological Considerations.* There are many old

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This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Gard is now serving his internship at the University of Kansas Medical Center.

people who enjoy their final years secure in the affection of families and friends. Many possess such resources in personality and constitution as to charm and inspire all who make their acquaintance. However, such people are out of the ordinary, for in our culture the aging individual must strive to maintain emotional security in a society which places premium values on energetic activity, youthful vigor, material success, invention, and progress. These characteristics are the order of the day, and little value is placed upon that which is outmoded or outworn.

Our social organization which has succeeded in greatly extending the span of life has failed miserably in evolving a position for the elderly people it has produced. Instead of a place of honor and respect or, as in some primitive cultures, outright elimination, our culture has relegated the elder members of our population to an ambiguous position. Expressions of solicitude and respect for the elderly too often serve the purpose of palliation to the consciences of our communities which each year deposit in uncared institutions thousands of aging people whom society no longer wants or feels able to tolerate.

Many elderly persons have confusional lapses, some periods of irascibility, and erratic memories which in the main are reactions to their changes in community and family standing.<sup>17</sup> Unless these mental symptoms are carefully evaluated in this light, an erroneous diagnosis may be made with these people being considered as hopeless cases of senile dementia or as arteriosclerotic psychoses. These are labels which are exceedingly difficult to remove.

As a result, these elderly people eventually are placed in nursing homes for the aged or are committed to mental hospitals where they live out their remaining years in complete idleness, devoid of affection and understanding.<sup>16</sup> In these surroundings many lose control of their remaining emotional resources and become hopelessly insane. These mental illnesses are avoidable and are an unforgivable blotch upon our culture and civilization.

This situation produces not one but two injustices. The first, and most deplorable, is to the elderly person; the second is in denying a bed in a mental institution to a younger psychotic individual who desperately needs the protective care and therapeutic resources of a mental hospital.<sup>16,32</sup>

2. *The Genesis of Emotional Problems.* Emotional problems, like all psychic problems, are problems of adaptation whether they occur in the young or in the elderly. Adaptation consists of modification or changes which occur in an organism in the general direction of more perfectly fitting it for successful existence under the conditions of its environment.<sup>15, 32</sup> The problems of adaptation entail two chief factors. The

first is the power and capacity of the organism, and the second is the task the organism needs to perform.

The human infant has one chief task, and that is to survive. This vegetative adaptation is of chief importance pending the maturation and development of those functions which ultimately enable the individual to exert himself actively to his own ends.

With successful survival of the infant there is a gradual change in his adaptive capacities with ultimate conversion from a more or less completely vegetative adaptive state into one in which self-initiated active mastery of life is more or less the case.

With the aging individual the primary task is also survival. However, there are major differences in this problem. The infant is developing from helplessness to self-sufficiency; the elderly person is losing self-sufficiency and becoming helpless. As the child develops, his self-respect and security increase progressively with his personal capacity for mastering the problems of his environment; as age advances there is declining security and self-respect. As the child develops toward independent survival, he has the continuing security of his dependence. The elder's declining powers of independent survival are not comparably associated with a supplementary secure dependency. The external adaptive powers of the healthy child are supported by the adequate internal functions of developing organs. The adaptive powers of the elderly person are handicapped by internal organs which are declining in their functions. Thus the factors which maintain homeostasis must operate within much narrower limits of variation in the elderly individual.<sup>18</sup>

It is this overlapping of the waning powers of maturity and the increasing helplessness of second childhood that is the basis for the psychologic picture that characterizes old age.

3. *Character Patterns and Old Age.* Physical and mental maturity occurs during the course of childhood and adolescence. At the same time the character of the person is developed and consolidated into the form which it will have throughout the duration of his mature life. The character of an individual is the habitual mode of reaction to problems. It is his habitual mode of entering into and participating in his relationships with other people. It is the individual's habitual outlook on life. A person's character is his habitual attitude towards himself, his picture of and evaluation of himself, his moral-ethical attitudes, and his method of dealing with his primitive impulses and instincts. It is, in short, the overall adaptive pattern of the individual.<sup>32</sup>

Character is determined by heredity and environment. An individual's temperament, motor and intellectual behavior, and reactivity to stimuli are prob-



ably inborn or hereditarily determined. The greater part of an individual's character, however, is determined by his experience, beginning with his infancy and depending upon the characters of his parents. Thus prevalent attitudes of security or insecurity, ascendancy or submission, optimism or pessimism, confidence in others or distrust of them, and many less tangible traits distinguish the various people that we know. The normal individual who has reached old age will have lived his life on the basis of a character structure which has been adequate to meet the problems of the total life situation in which he has found himself. And in the end the psychological pattern of the aging person will be determined by his mature character structure.

4. *Patterns of Adjustment.* Men mature successfully through techniques of mastery which have insured that success. That is, techniques that have worked well in their personal relations, in their work, and in internal stresses become fixed and rigid habits of adjustment. The older man has increasing anxiety before the new and untried and therefore shows little tolerance for change. He reacts to this decreasing tolerance by conservatism of outlook and action. Problems of adaptation which have not been previously mastered successfully become too great a burden for failing psychological and physical powers. The older person inwardly is aware of his increasing inadequacies. Particularly disturbing are his even slight failures of memory which may be the first signs of decline. His reactions to the early signs of decline are several.

The dulling of recent memories and sharpening of remembrances of past events are not due to organic changes alone. This common reaction can be seen psychologically as a turning away from the anxieties of the present. The present lacks the dependent security of childhood and the independent ability for maintaining security in advancing years. The past, however, carries forever the record of a life lived successfully, the problems which were overcome, and the disasters survived. The memory of the elderly person turns back to the period of greatest security and capacity as an attempt to find reassurance that the threats of the present will be as easily overcome as they were in the past.

In order to compensate for feelings of inferiority and inadequacy that are produced by actual physical and psychological decline, many old people become more and more self-assertive and domineering. Others turn to alcohol for the first time in an attempt to suppress these feelings. Other factors that cause reactive cantankerousness in elderly people are the loss of centrality of position in the family group and in the person's work, the sense of loss of social status because of actual or relative decline in occupational

status, and a general cultural attitude toward old age as a time of necessary and actual failure.

The waning of sexual vigor and function is a large factor in the emotional problems of elderly people. This stressful factor is likely to be greater with men than with women. However, this is not invariably so, as many women are surprised and embarrassed to note a heightened and intensified erotic drive after the climacteric. To the man who has been neurotically insecure concerning his masculinity, the aging process and its accompanying loss of sexual functions may be too devastating to allow stable adjustment. It is the overcompensatory reaction to this emotional problem that produces the lecherous old man.<sup>26</sup>

Mild depression is commonly seen in the elderly person. This is due to the inevitably increasing isolation and loneliness as friends and relatives die or are absorbed in their own lives. The elders are being left behind by life, and they can experience this only as desertion. Adding to the depressive feelings are loss of self-respect and self-esteem which accompany feelings of helplessness and worthlessness.

As elderly persons feel themselves more and more isolated, they turn in more and more on themselves and show increasing preoccupation with the past where they have tangible proof of their significance. In addition they become increasingly sensitive to slights. They may become increasingly querulous in reaction to the fact that little honor is paid to the traditions and prerogatives they stand upon to bolster themselves. Their sensitiveness may at times show signs of paranoid attitudes.

All persons harbor delusions of invulnerability, but in the elderly these delusions are continually being undermined by the increasing incidence of illness and death in the members of their own age group. At the same time they find that old habits of living become less reliable as bolsters of security, as new thoughts, new techniques, and new ways of living are adopted by society. As a consequence there is an increase in what psychiatrists call "free floating anxiety."<sup>32</sup>

Psychological tensions become translated into somatic tensions. In this way vague general anxieties can be coped with by attaching them to specific susceptible organs. Constipation, joint aches, and general aches and pains are matters which can legitimately be looked upon as matters of interest and concern by relatives and doctors. By this route there is hope of restoring a little of the lost security to the elderly person. Older people, therefore, become more and more concerned about their bodily functions, and signs and symptoms tend to be more severe and incapacitating. In this way an attempt is made to resume the dependent attitude and position of early childhood.<sup>27, 32</sup>

The basic function of an individual's character, or over-all adaptive process, is to deal with the person's particular reality in such a way as to overcome his vicissitudes, minimize its dangers, and add to his security, pleasure, and self-esteem. The more rigid the character adaptation has been, the more open will tend to be the signs of anxiety and insecurity in old age as manifested by sensitiveness, irritability and querulousness, compensatory self-assertiveness and stubbornness, depressiveness and hypochondriasis. The more flexible the character has been, the more likely we are to encounter that delightful person whom we speak of as never having grown old. In his relationship with the younger up-and-coming person the individual possessing a rigid character tends to be hostile; the elderly person who possesses a flexible character tends to show the qualities of generous fatherliness or motherliness that go with security and self-respect.

5. *Interdependence of Elderly Couples.* Couples who live together through a long married life establish a symbiotic relationship upon which each of them is dependent even if the marriage has not measured up to ideal external standards. It commonly occurs that one of a couple does not survive long following the death of the mate, even though the survivor's state of health shows little reason for his death. In other cases a fairly severe depression results. If there has been a mixture of hostility and affection in the relationship, the surviving partner tends to develop a neurotic illness with symptoms comparable to those involved in the cause of death of the spouse.

All of these reactions are manifestations of the intense identification which occurs within elderly couples. As couples become older their dependency upon each other increases because they remain for each other the familiar landmarks in a life whose course has been changed by age. They provide each other support and security because, at least in this aspect of their lives, there survives something predictable and capable of being handled by old familiar techniques.

6. *Psychosomatic Complexities.* One striking phenomenon in old age is the relationship of emotional problems and actual organic disease. To the older person illness is a continual threat because of decreased constitutional reserves and the psychological factors that we have discussed. Every blow to their failing powers increases their insecurity to which they react by either over-compensation with its increased burden upon the individual, or by invalid reactions which enforce the claims of the individual for more care and attention.

More striking phenomena, however, are those situations in which a severe emotional blow seems to re-

sult in the activation of some previously latent organic disease to which the individual rapidly succumbs. Examples of this are evident in cases of cerebral apoplexy or the sudden onset of rapid mental deterioration in people who were considered mentally intact before the loss of a spouse, or other severe types of emotional trauma.

There usually is no clear relationship between the amount of brain tissue degeneration found at autopsy and the mental picture during life.<sup>32</sup> Elderly people with an adequately balanced personality are usually able to withstand a considerable amount of cerebral damage, while persons who are not so well balanced may develop severe and frank psychoses following minimal cerebral trauma. Even more complex psychosomatic relationships occur with some of the other chronic diseases of old age such as arthritis and heart disease. All of the secondary elaborations of these diseases are due to emotional problems of the persons concerned.

7. *Iatrogenic Confusional States in the Elderly Person.* In dealing with emotional problems of the elderly person an iatrogenic factor of no small import must be considered. Many elderly patients who are hospitalized for purely organic pathological reasons have developed symptoms of mental illness during the period of hospitalization. Hospitalization in itself may precipitate marked mental confusion, which is especially apparent at night. The confinement of the elderly patient to a strange room in unfamiliar surroundings, frequently amounting to solitary confinement, may precipitate the confusional state. These confusional states occur less frequently if the patient is placed in a ward.<sup>12</sup>

Another factor in precipitating mental symptoms in the elderly patient is the injudicious use of sedation, especially the barbiturates and bromides. Therapeutic doses of these sedatives can be given to elderly patients as a rule. However, many times this dose will be found to be ineffective in calming a restless patient and the drug will be repeated. It must be remembered that the elderly person does not eliminate drugs from his system as rapidly as the younger individual, with the result that high blood levels are maintained for a longer duration. Therefore, repeated doses may produce near toxic blood levels. Many times confusional and noisy states may be delirium and may be aggravated by toxic doses of sedatives. Most of the mental symptoms in these patients clear after withholding sedation.<sup>9</sup>

8. *Normal Adaptive Reactions.* One should not assume that there is no such thing as a normal old age. Elderly people whose life-long stability has been resilient rather than rigid usually live out their years with dignity and decency although none will escape



his share of anxiety and desolation. A flexible person has respect for himself but is without conceit. He guides himself by principles but is open-minded to other ideals. He is not hypnotized by one immutable goal but has steadiness of purpose. He employs his strength and tolerates his weaknesses. Such a person has applied his adaptive capacities to their proper task of mastering the environment to the end of overcoming its vicissitudes, minimizing its dangers, and deriving from it its legitimate gratifications. This person is able to overcome the harsh realities of aging.

9. *Problems of Therapy and Prophylaxis.* Financial security following retirement affects the largest part of the elderly population and is the chief aspect of the problem of prophylaxis. The details of this problem are largely the concern of the political scientist and the citizen of good will. However, the medical profession must remember its importance as a factor in the emotional problems of our elders. But even without stringent financial difficulties, the problems of retirement are large. There are many cases on record of people who were in excellent health before retirement and who died or became bedfast invalids soon after retirement.

To many elderly people the retirement banquet constitutes the funeral of a living death, for they feel that after retirement their activities are through. Where do they go then? What can they do to occupy their time? To many people the work they do contains all the meaning of life. A life without meaning and without purpose is merely an existence. This fact carries the problem of prophylaxis back into the years of the prime of life. It is then that a person should recognize the approach of old age and retirement. It is then that he should begin to prepare for it through diversification of interests and activities. However, it is the rare person who is so reasonable when it comes to preparation for old age.

In the usual situation we are faced with a person who has become too old to work comfortably at his usual task; or, the person may not be too old but his coronaries or joints are; and we are asked to advise him what to do. This responsibility must not be lightly taken by the medical profession. If retirement is necessary, it should be undertaken gradually and seldom completely. Collateral interests should be mobilized, revived, or created to the fullest extent possible. "That is: one should retire *to* something, not *from* something."

At present there are a number of privately founded day clubs for elderly people in many of the large cities in this country. Here elderly people have contact with their equals and are able to establish themselves in new social relationships. They are able to work at old hobbies or acquire new interests in vari-

ous directions such as intellectual, manual, or artistic. These establishments as yet are new, but they show much promise. It is conceivable that if established nationally, clubs of this type could greatly ease the emotional problems of our elders.

Further, the principle demonstrated by these day clubs could be applied in homes for the aged and in geriatric divisions of mental hospitals. With a little good will and ingenuity, these cheerless infirmaries could be transformed into centers for social living and useful activity.

Elderly people get along best with themselves and each other in regard to their private capacities. Even to the best intentioned young people, the elderly person is psychologically burdensome. If the elderly person must live with a son or daughter, the best rapport will be established if as much privacy is provided as feasible. In these days of two-family houses and apartments, privacy for all members of the family, young or old, is understandably difficult. However, if the reasonable family can take upon itself the little private social work involved in finding appropriate contacts and activities for the old one, the tempers and emotions of all concerned will fare much better.

For the woman, activities of fine art or crafts, both the solitary and types requiring other people, are useful. Allowing the older woman to help with housework such as washing dishes and cleaning is beneficial. Teas and bridge games with other elderly women are excellent opportunities for social mixing.

For the elderly man, meaningful hobbies, craft work, and activity in the social responsibilities of the community provide areas of usefulness and satisfaction.

Finally, we the younger members of the population cannot afford to forget what the elderly person knows. We can better ourselves by tapping his storehouse of experience and knowledge, and at the same time we can return to him the self-respect, self-esteem, and feeling of being necessary and wanted.

### Summary

In preparing this paper on the emotional problems of elderly people, the author has gained a respect and understanding of the elderly person that previously was not present. It is hoped that those who read this paper will also gain a new insight into the problems of this period of life and develop new respect for our older population.

Many times the opinion is expressed that an old person has lived a full life and, therefore, should not receive too much sympathy during his waning years. I feel that this attitude is not just, for any person who has been able to overcome the pitfalls



of life necessary to reach an old age is to be respected and honored for this accomplishment.

An attempt has been made to show the tremendous problems which have been introduced to our culture by an aging population. If we are to continue increasing the life expectancy of the human being—and all indications are that we will—we must change the present attitude toward the elderly person and provide a respectable place for these people in our social structure.

The emotional problems of the elderly person have been discussed in relation to their causes and the various manifestations in which they are evident.

The problems of therapy and prophylaxis have been presented. It is realized that the discussion is brief and that many aspects of this problem need further clarification. It is hoped, however, that the reader can realize that therapeutic gains can be made, and that the hope for a happy old age can be realized only if preparation is made for it during the formative and productive years of one's life.

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A report from Washington, quoting an engineering professor who recently visited Russia, says that the medical doctor or attorney in that country can expect to earn the equivalent of between \$325 and \$450 per month. A university professor will be getting \$1,500 to \$2,750 plus such extra benefits as autos at no cost. Engineers are paid on about the same scale as doctors, high school teachers \$300 to \$325, laborers about \$125. Living costs in Russia are reflected in the price of shoes, ones of good quality selling at \$75 to \$100.

## PHYSICIANS' ACTIVITIES

**Dr. Charles C. Underwood**, Emporia, is spending two months in Europe, primarily to attend the World Cancer Conference in London and a surgical assembly in Stockholm.

The new governor of the American College of Physicians for Kansas, chosen at a meeting held in Atlantic City in May, is **Dr. Fred J. McEwen**, Wichita.

**Dr. E. Grey Dimond**, of the University of Kansas Medical Center, spoke on "Renaissance of the Stethoscope" at the May meeting of the St. Louis Internists' Club. Later that month he discussed "Clinical Study of Internal Mammary Artery Ligation for Angina Pectoris with Sham Operation" before a meeting of the American College of Cardiology in St. Louis.

Membership in the Southwestern Surgical Congress has been conferred on **Dr. Otto J. Hartig**, Downs.

**Dr. Kenneth J. Gleason**, Independence, spoke on ethics and public relations before the Allen County Medical Assistants Society recently.

Announcement has been made that **Dr. Donald E. Wilcox**, formerly of the Kansas City-Wyandotte County Health Department, is now associated with the Kansas State Board of Health as assistant to **Dr. James M. Mott** in the division of preventable disease.

**Dr. LaRue W. Owen**, Wichita, recently became a diplomate of the American Board of Anesthesiology.

**Dr. Theodore E. Young**, who has been practicing in Winfield during the past seven years, moved to Topeka last month and is now practicing there, specializing in pediatrics.

Plans to practice in Tulsa have been announced by **Dr. Robert A. Jordan**, assistant professor of medicine at the University of Kansas Medical Center.

**Dr. A. R. Chambers**, Iola, has announced plans to seek re-election as a member of the Kansas House

of Representatives. A Republican, Dr. Chambers has served on the House Committee on Hygiene and Public Health.

The resignation of **Dr. Harry G. Gianakon**, associate professor of psychiatry and pediatrics at the University of Kansas Medical Center, became effective on July 1. Dr. Gianakon has become director of the Child Study Center, Institute of Pennsylvania Hospital, in Philadelphia.

**Dr. Philip W. Morgan**, Emporia, was given a distinguished achievement award by the Kansas Heart Association at its convention in Emporia last month. He is a past president of the organization.

Three psychiatrists from Topeka State Hospital participated in the program of the American Psychiatric Association in San Francisco last month. **Dr. Paul Feldman** was chairman of the Coordinating Committee on Technical Aspects of Psychiatry, **Dr. Robert K. Jones** presented a paper on "The Psychotherapy Program at Topeka State Hospital," and **Dr. Leslie Ch'eng** participated in a session on mental deficiency.

**Dr. Thomas P. Butcher**, Emporia, discussed methods of paying for health care services at a recent meeting of the Lyon County Republican Women's Club in Emporia.

**Dr. William Menninger**, Topeka, who recently completed a term as chairman of the board of governors of the American College of Physicians, was elected to a three-year term as regent for the group.

**Dr. Herbert C. Miller**, chairman of the Department of Pediatrics at the University of Kansas Medical Center, was recently elected chairman of the Pediatric Committee of the National Board of Medical Examiners.

A graduate of the University of Kansas School of Medicine who has been at Rosebud, South Dakota, for two and a half years in the Indian Health Service, **Dr. Reuben Burkman**, has announced plans to practice general surgery in Chanute in association with **Dr. Henry K. Baker**.

**Dr. Robert M. Fenton**, Garden City, has filed as a Democratic candidate for the office of coroner of Finney County.

## DEATH NOTICES

### JOSEPH H. BUCKLES, M.D.

Dr. J. H. Buckles, 82, who had been a physician more than 50 years, the last 10 years in Waverly, died at a hospital in Burlington on May 11. He was an active member of the Coffey County Medical Society. Dr. Buckles received his medical degree from Ensworth Medical College, St. Joseph, in 1905, and began practice that year.

### FLOYD ELDRIDGE WALLACE, M.D.

A retired physician who was an honorary member of the Rice County Medical Society, Dr. F. E. Wallace, 78, died in a Hutchinson hospital on May 17 after a long illness. He began practice in Chase in 1905, after his graduation from Kansas City Medical College, and had been active in practice there until recent years.

### FRANCIS CLAYBOURNE BASHAM, M.D.

Dr. F. C. Basham, 48, Eureka, died on May 22 as the result of a heart attack suffered as he drove from his home to his office. He was an active member of the Greenwood County Medical Society. A graduate of Washington University School of Medicine, St. Louis, in 1933, he began practice in Eureka in 1934 and established the Basham Hospital there in 1936. His father was a physician, the late Dr. David Basham of Wichita, and his brothers are also physicians, Dr. John H. Basham of Eureka, Dr. James J. Basham of Fort Scott, Dr. George Basham of Wichita, Dr. David Basham of St. Louis, and Dr. Charles Basham of Pomona, California.

### JOSEPH DAVID PETTET, M.D.

An active member of the Crawford County Society, Dr. J. D. Pettet, 83, died at a Pittsburg hospital on May 25 after having suffered a stroke. He was graduated from the College of Physicians and Surgeons, St. Louis, in 1900 and began practice in Mound Valley, moving to Arcadia in 1915 and to Pittsburg in 1941. During World War I he served overseas in the Army Medical Corps. He had not retired from practice.

### WILLIAM MERRILL MILLS, M.D.

Dr. W. M. Mills, 75, Topeka surgeon prominent in local, county, state, and regional medical affairs, died at his home on May 26 after having suffered a heart attack. His services to medicine included the following offices: president of Shawnee County Medical Society, 1921; president of Kansas Medical Society, 1946-1947; editor of JOURNAL OF KANSAS MEDICAL SOCIETY, 1934-1946; president, Western Surgical Association, 1948; governor, American College of Surgeons, 1942-1948; member, Board of Trustees, Menninger Foundation; clinical professor of surgery, University of Kansas School of Medicine.

His interest in the Kansas Medical Society continued until the time of his death, centering on the history of the organization. He was recently reappointed chairman of the Committee on History, an assignment of special importance because of the Society's approaching centennial celebration.

Dr. Mills was graduated from Washburn College, Topeka, in 1903 and later served on its board of trustees. He received his medical degree from Columbia University College of Physicians and Surgeons, New York, in 1907. He began practice in Topeka in 1910.

### ALBERT BEAM, M.D.

An honorary member of the Lyon County Medical Society, Dr. Albert Beam, 87, of Americus, died at an Emporia hospital on June 2. He had practiced in Americus since 1918. Dr. Beam was graduated from University Medical College, Kansas City, in 1908.

### JOSEPH RUDOLPH BETTHAUSER, M.D.

Dr. J. R. Betthausen, 69, Hays physician since 1919, died at his home there on June 3. He had recently been released from a hospital after recovering from pneumonia, and suffered a heart attack shortly before his death. He received his medical education at Loyola University School of Medicine, Chicago, graduating in 1916, and served his internship in Chicago also. He had spend his entire professional life in Hays.



**Dr. M. L. Furcolow**, of the University of Kansas Medical Center, presented a paper at a meeting of the American College of Chest Physicians in San Francisco on June 20.

A "distinguished alumni" award from Park College, Parkville, Missouri, was presented to **Dr. Emmit E. Peterson**, Halstead, on June 7. He was graduated from the college in 1905.

**Dr. W. E. McAllaster**, who has been practicing in Russell for more than two years, closed his office in June to move to Kansas City, Missouri, to begin a residency in surgery at St. Luke's Hospital.

A feature story in the *Wichita Eagle* on June 5 paid tribute to **Dr. J. W. Cheney**, Wichita, who recently observed his 60th anniversary as a practicing physician and doesn't plan to retire "as long as I'm able to go downtown."

**Dr. William Valk**, of the University of Kansas Medical Center, spoke on "Kidney Tumors" at a recent Ozarks Empire Cancer Conference in Springfield, Missouri.

A graduate of the University of Kansas School of Medicine who has been serving a residency in internal medicine at the Veterans Administration Hospital in Kansas City, **Dr. James Schultz**, has announced plans to practice in Council Grove in association with **Dr. R. W. Blackburn** and **Dr. Royal Barker**. Offices will also be maintained in Dwight and Alta Vista.

**Dr. Fred G. Dietrich**, formerly of Lakin, is now practicing in Abilene. He was graduated from the University of Kansas School of Medicine in 1944, served his internship in Santa Barbara, California, spent two years in the Army, and has been practicing in Lakin since that time.

**Dr. Eugene Siler**, who left general practice in Hays to study ophthalmology in Denver, has returned to Hays and is now specializing in diseases of the eye there.

**Dr. Leonard F. Peltier**, professor of orthopedic surgery at the University of Kansas Medical Center,

recently served as moderator and speaker at a meeting of staff members of all hospitals in Oklahoma.

"Man of the Week" was the title conferred on **Dr. Philip W. Morgan**, Emporia, by the *Emporia Gazette* in its issue for June 5.

**Dr. Philip J. Antrim**, Attica, attended a two-week course in surgery at the Cook County Hospital, Chicago, last month.

The American Board of Obstetrics and Gynecology lists the following Kansans as having become diplomates as of May 16, 1958: **Dr. Eugene W. J. Pearce**, Mission; **Dr. William R. Roy**, Topeka; **Dr. Rosemary Schrepfer**, Kansas City; **Dr. Jack C. Schroll**, Hutchinson, and **Dr. William J. Spanos**, Kansas City.

**Dr. W. Clarke Wescoe**, dean of the University of Kansas School of Medicine, was recently named to a three-year term as trustee of the Midwest Research Institute in Kansas City, Missouri.

A graduate of the University of Kansas School of Medicine who recently completed internship at the University of Idaho Hospital, **Dr. Ray Stutzman**, has announced plans to practice in WaKeeney in association with **Dr. Francis J. Bice**.

**Dr. E. H. Clayton**, practicing physician in Arkansas City for 49 years, was honored by the Cowley County Medical Society at a dinner at the Arkansas City Country Club recently. He was presented a key engraved with medical insignia and the dates 1908-1958. Speaker for the occasion was **Dr. Thomas P. Butcher**, Emporia, president of the Kansas Medical Society. Recognition was also given **Dr. C. T. Ralls**, who celebrated his 50th anniversary two years ago.

### Atomic Energy Commission Awards

Among 51 awards announced recently by the Atomic Energy Commission for unclassified life science research were three for Kansans at the University of Kansas. **Dr. F. E. Hoecker** was awarded \$19,845 for a study of deposition and excretion of bone-seeking radioisotopes and \$9,094 for investigation of organic substances tagged with  $I^{131}$  by human thyroid gland in vivo. **Dr. C. A. Leone** received \$9,425 for immunological studies of radiation-induced damage to biological systems.

# Economics in Medicine

## *Explaining Your Fees to the Patient*

FLOYD F. WEHRENBURG, *Kansas City*

More doctor-patient relationships have been spoiled by a misunderstanding over fees than by any other or possibly all other fields of misunderstanding, according to Stanley Truman in his book, *The Doctor*. It would seem then that every precaution should be taken to avoid such misunderstandings.

Any fee of \$15 or over should be explained to the patient. If you were to spend only a few minutes with every patient incurring such a charge, explaining the need for the service and the fee, your public relations and your collections would be immeasurably improved.

A simple introduction to the matter is sufficient. Say that you have found that most persons appreciate an explanation of your fees and that you will always do your best to help your patients understand the necessity for the treatment you prescribe and the fees you charge.

Then, *in language he can understand*, briefly tell him what is required and the probable fee. Far too many physicians fail to realize that medical terms only frighten and confuse laymen. Many patients feel the doctor considers them unable to understand their condition, that he is trying to conceal something, or merely to impress them. If you will learn to express yourself in laymen's terms, you will quickly win the cooperation of the patient. The fact that you bother to explain at all will indicate to him that you have taken a "special" interest in his case and he will feel much more secure—and also more inclined to pay his bill when it comes due!

Because most doctors barely have time to see all their patients each day, many feel they haven't time to discuss these matters with the patient. However, this is no excuse, particularly in obstetrical cases, surgery, or extended treatment. If you are fortunate enough to have a capable medical assistant who can discuss these matters with the patient, much of this responsibility can be entrusted to her. But be sure that *someone* explains the fee to the patient.

### **The Charge Slip**

The simplest method of explaining fees for minor services to patients is through the charge slip. Be-

sides informing the patient and the medical assistant of the services rendered and the fees, the charge slip offers the medical assistant an opportunity to encourage payment at the time of the visit or discuss future payment. It has one other great advantage to you. Frequently a doctor tends to charge his patients a lump sum for services rendered. By this method he may be depriving himself of hundreds of dollars of earned income each month. By preparing a charge slip on which the most common services are itemized, each fee will also be itemized and the result will be fairer to the patient and to yourself.

A charge slip should be prepared for each patient and attached to his case history. Not until all services for that visit (consultation, treatment, laboratory, x-rays, etc.) have been completed and the fees recorded on the charge slip should it be given to the patient with the request to hand it to the medical assistant on his way out. This will give him an opportunity to study the charges, and if he has any questions he can bring them up while the service is still fresh in his mind. Misunderstandings can be cleared up much more easily at that time than 30 days later when the statement arrives.

Finally, the charge slip should contain a line for the next appointment. This will notify him and the medical assistant that he is to return and a definite appointment can be made.

### **Itemized Statements**

Even with an explanation and the charge slip, patients sometimes forget by the end of the month how much service was rendered. If the patient receives a statement "For Professional Services" in the amount of \$50, he might think it an exorbitant charge for the few times he was in your office. He might also wonder if it includes the amount covered by insurance.

To itemize statements by hand at the end of the month is almost an impossible task in most offices. Machines upon which the posting can be completed—and proved—daily are an excellent solution. At the end of the month, then, you will have a neat, accurate itemized statement for each patient who has been in during the month. Formerly it was felt that such a machine was practical only in a large medical

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office, but this is not true. Any established physician can make good use of one of the machines on the market today.

There is a trend toward reproducing the entire ledger sheet as a statement at the end of the month. Certainly this is much faster than typing the statement and does furnish itemized statements not only for the month but for the entire period covered on the ledger sheet. This also presents itemized statements and is faster than the posting machine and probably less expensive. However, ledger cards must be kept neatly if the copy is to be at all presentable. Another drawback is that paper used for the statement is thin and, up to this time, best reproduction has been obtained with colored paper.

The statement should also inform the patient whether the amount covered by insurance is included in the total shown.

With these routines you will have answered the patient's questions concerning fees before he asks them! Your public relations and your collections will both benefit.

## ANNOUNCEMENTS

Fifth annual meeting, Academy of Psychosomatic Medicine, Park Sheraton Hotel, New York City, October 9-11. Information available from Dr. Bertam B. Moss, Suite 1035, 55 East Washington Street, Chicago 2, Illinois.

Fifth annual St. Joseph's Clinics, Denver, July 31-August 2. Speakers include Dr. Edgar J. Poth, professor of surgery, University of Texas; Dr. Laurance W. Kinsell, director of Institute for Metabolic Research, Oakland, California; and members of staff of St. Joseph's Hospital. Attendance limited to invited guests. Those wishing invitations should write Mrs. Eugenia Hogue, St. Joseph's Hospital, 18th at Humboldt, Denver 18, Colorado.

Applications now being accepted from candidates for certification by American Board of Obstetrics and Gynecology. Deadline, September 1, 1958. Information available from Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

Postgraduate course, Prevention and Management of Athletic Injuries, August 25-27, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

American Urological Association offers annual award of \$1,000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on result of clinical or laboratory research in urology. Write William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Closing date for entries, December 1, 1958.

Meeting of District VII, American College of Obstetricians and Gynecologists, Jackson, Mississippi, September 12-13. Write Dr. C. G. Sutherland, 918 North State Street, Jackson 2, Mississippi.

Two postgraduate courses at Cook County Graduate School of Medicine presented by United States Section, International College of Surgeons, July 7-19 and October 13-25. Twenty hours of surgical anatomy, lectures, demonstrations. Write International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Illinois.

Applications received until September 1 and December 1 for postdoctoral fellowships in research and academic medicine or in clinical fields of rehabilitation, orthopedics, and preventive medicine. Financial support given by National Foundation for Infantile Paralysis, 301 East 42nd Street, New York 17, New York.

Postdoctoral investigatorship awards in fundamental sciences related to arthritis available from Arthritis and Rheumatism Foundation, 10 Columbus Circle, New York 19, New York. Tenable for one year with prospect of renewal. Stipends from \$4,000 to \$6,000. Deadline for applications, October 31, 1958. Program begins July 1, 1959.

Courses to be offered by University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado: pediatrics, September 4-9; cardiopulmonary diseases, October 16-18; epilepsy, October 30-November 1; general practice review, January 19-24, 1959.

Does mental illness vary with social and economic status? People in the higher income bracket are more likely to fall victim to neuroses than their less successful fellows, according to the publication *Patterns of Disease* prepared by Parke, Davis and Company for the medical profession. On the other side of the coin, however, "unskilled and semi-skilled" people with less education are more prone to psychoses. Men are more often afflicted than women with both types of mental illness in the two income brackets.



# Private Medical Care

## *Advantages We Enjoy under Our Present System*

LES MARTIN, *Topeka*

"I do solemnly swear by that which I hold most sacred . . . That into whatsoever house I shall enter, it shall be for the good of the sick to the utmost of my power, I holding myself aloof from wrong, from corruption, and from the temptation of others to vice. . . ."—*Hippocratic Oath*

Men who adhere to ideals such as these have made America the healthiest large nation on earth. America is now enjoying the benefits of the greatest strides in medical research, the highest standards of medical care, and the longest life expectancy in the history of mankind. We have realized this progress because our doctors, particularly during the last half century, have had the ambition, devotion and foresight to forge ahead in the war on disease and human misery and because the American people have learned the value of voluntary health insurance plans, and the right to invest their dollars as they see fit. The key to America's success is private medical care.

Medicine has come a long way down the road of progress in a fantastically short time. America stands as the healthiest large nation in the world. The babies born today can expect to live at least 20 years longer than those born in 1900. Once mortal diseases—typhoid fever, smallpox, diphtheria, pneumonia and many others—have been brought under control. Since 1900, while our over-all population has more than doubled, the number of persons 65 and older has more than quadrupled. This accounts largely for the increased death rates for cancer, heart disease, and other diseases which account for a major number of deaths in persons over 65 years of age. In the span of only a few decades such new discoveries as vitamins, the sulfa drugs, antibiotics, and hormones have been added to the arsenal of the physician warring on pain, suffering, and disease. New plastic substances have made it possible for surgeons to duplicate many body passages and valves, saving untold lives annually through their use.

The atomic age brings promise of even greater ad-

vances through the application of the by-products of atomic fission, the radioisotopes. At present they are used to kill certain forms of cancer, and as tracers of vital bodily functions. And no one knows what tomorrow may bring. The magnificent new field of atomic medicine may lead to undreamed of discoveries and cures for many of medicine's unsolved riddles. The 20th century has seen the birth of one of the greatest advances in history, the perfection of the Salk vaccine for the prevention of infantile paralysis.

The English claimed that the purpose of their medical program was to equalize the opportunities for all to receive care. But has it succeeded in this? A certain portion of the English population did not wish to participate in a government medical program. This percentage, though small, probably in the neighborhood of five per cent, nevertheless represented an area of opposition. The hospitals, now government operated, are known to maintain private rooms available only to the more wealthy upper class that can afford to pay the exorbitant fees charged for them. Isolated rural areas and other localities withdrawn from main centers of population cannot be provided with the same standards available in urban areas, regardless of the system in practice. It also seems likely that patients would feel more free to consult a physician unnecessarily under a socialized system. Some doctors go so far as to claim that patients in a socialized medical system show less incentive to recover, due no doubt to the lack of psychological pressure on their purse.

To change our voluntary health system into a compulsory one could and would prove disastrous. The highly developed medical code that has been so carefully developed would be stifled and in need of complete revision. The medical profession would be controlled by the government, and by agencies not qualified in the field of medical ethics. Caring for persons not in urgent need of treatment would occupy time that should be devoted to the seriously ill. In England only three minutes may be allotted to each patient for diagnosis and treatment. This can hardly be called individual attention.

In the final analysis, there is no need for a change

This essay was awarded first prize in a contest conducted recently by the Woman's Auxiliary to the Kansas Medical Society. The author, at the time the essay was written, was a senior at Hayden High School, Topeka.

in the American private care system. Outstanding achievements such as those the medical profession in America has attained are not accomplished by an organization of low standards and inferior leadership. Ten years of intensive study are required at approved medical schools, and under intern and residency programs. Post-graduate courses are offered by schools, hospitals, and other health agencies. Annually record numbers of young men and women enter this most promising field. What often appears to be a shortage of doctors is actually a failure in proper distribution of these highly trained men and women. The American Medical Association has established a placement bureau to aid physicians in finding those areas that are not adequately staffed by medical personnel. These hardy external signs do not indicate an internally moribund medical system. This is, rather, the sphere of a highly efficient, expertly trained, unselfishly devoted team. This is the world, these are the accomplishments of private medical care.

The great tenet of those who seek the socialization of medicine is that it would enable all to enjoy free medical care. Unfortunately, nothing in this life is given to us for nothing. Socialized medicine spells taxes. In the average case it would be less expensive to pay cash for medical expenses than to pay taxes to the government, and to hope on one hand to be able to receive benefit from the system for which you were paying, and on the other hand hope, as all normal people do, that you will be able to avoid any ills serious enough to warrant professional care. If cash is not available, then in almost all cases it is possible to obtain a loan, draw upon savings, or sell securities. The only persons who should be receiving, and are receiving government medical aid are the chronically ill and the indigent. Welfare agencies have wisely been established by the government to aid those in need, and this is, indeed, one of the duties of the government to its people.

At the present time somewhat more than 60 per cent of all those eligible carry some kind of voluntary health insurance. This means that over one hundred million Americans are covered in some way by one of the three main divisions of health insurance, insurance company plans, Blue Cross or Blue Shield, or another independent plan. In voluntary health insurance plans the patient has the greatest possible advantage over compulsory health insurance—the doctor and hospital of his choice.

The British have learned from experience what the socialization of medicine entails. Aside from the regimentation which socialization brings to any field, they have found that the cost of establishing and maintaining an administrative department to govern such a system is enormous. A physician, having lost

his autonomy of practice, loses his identity of purpose. The patient and his doctor function well together. The patient, his doctor, and the government do not. The advances in research that have occurred in recent years are direct results of free enterprise.

Compulsory health insurance and socialized medicine do not hold the answers to the problems of the medical world. Indeed no one system can now or will ever be able to satisfy every one. The facts remain. Private medical care and voluntary health insurance have wrought the greatest deeds ever performed for the physical betterment of mankind. Socialized medicine, in countries where it has been utilized, has produced no similar record. We stand today on the threshold of the era of the conquest of disease. With the help of God and through the continued industry of men we may one day attain that goal.

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5. *Today's Health*, V. 29, p. 13, August 1951.
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### C. of C. Examines Veterans' Benefits

The board of directors of the Chamber of Commerce of the United States, according to information reaching the American Medical Association, recently adopted a statement of policy about the problem of the increased number of veterans utilizing federal hospital facilities without having service-connected disability. The number of such hospital patients (non-service-connected) far exceeds the number of those who are being treated for war-caused disabilities. The prospective cost of the program is enormous.

Termination of housing, educational, and hospital benefits for veterans with non-service-connected disabilities, with a view to reducing costs to veteran and non-veteran taxpayers, is being urged by the board of directors of the Chamber of Commerce. This would place veterans on the same basis as other citizens.

# Official Proceedings

## *Reports of 1958 Meetings of House of Delegates*

### **First Session**

The first 1958 meeting of the House of Delegates of the Kansas Medical Society was held at the National Guard Armory, Kansas City, on Monday morning, May 5, following a 7:30 breakfast. Dr. Barrett A. Nelson, Manhattan, presided.

Dr. A. W. Fegtly, Wichita, chairman of the Committee on Constitution and Rules, reported the presence of a quorum, later established to include 81 delegates and alternates, 7 officers, 15 councilors, 5 past presidents, and 7 guests. Forty-three component societies were represented, 30 not represented.

Minutes of the 1957 meetings, as published in the JOURNAL, were approved.

Dr. Nelson reported that councilor and committee reports published in the April issue of the JOURNAL had been summarized by a committee composed of Dr. Frederick E. Wrightman, Sabetha, chairman; Dr. J. Allen Howell, Wellington, and Dr. H. Preston Palmer, Scott City. He announced also that the second reference committee, which would summarize and make recommendations concerning all business introduced at the first meeting of the House of Delegates, would be composed of Dr. George E. Burket, Jr., Kingman, chairman; Dr. George F. Gsell, Wichita, and Dr. Glenn R. Peters, Kansas City. The meeting of this committee was scheduled for 9:00 a.m. on Tuesday, May 8, at an office adjacent to the registration desk.

The rules of the meeting were suspended to permit introduction of a request from the Woman's Auxiliary to the Kansas Medical Society for permission to create a School Health Committee.

The president then explained that the election of officers at the second session of the House of Delegates could be handled more expeditiously if no more than two candidates were to be voted upon for each office. He mentioned that the Nominating Committee had selected three candidates for each of two offices and reported the Council's recommendation that the first balloting, to eliminate one candidate for each office, take place at the initial House of Delegates session. The House suspended the rules to permit this balloting.

Although the president called for additional nominations, no other candidates were suggested so balloting proceeded. Dr. Fegtly was named chairman of a committee of tellers with Dr. J. Gordon Clay-

pool, Howard, and Dr. Robert Sohlberg, Jr., McPherson, as committee members. At a later part of the meeting Dr. Fegtly announced that the names of Dr. W. L. Anderson, Atchison, and Dr. Harold M. Glover, Newton, were to remain on the ballot as candidates for the office of second vice-president, and that the names of Dr. Conrad M. Barnes, Seneca, and Dr. Norton L. Francis, Wichita, were to remain on the ballot as candidates for the office of alternate delegate to meetings of the American Medical Association.

Dr. Nelson appointed a special committee to study the format of future annual sessions, naming to it two physicians from each city in which meetings are held and two physicians from the state at large. Named were: Dr. A. C. Armitage and Dr. M. E. Nunemaker of Hutchinson, Dr. Norton L. Francis and Dr. Bruce P. Meeker of Wichita, Dr. Francis T. Collins and Dr. Richard C. Tozer of Topeka, Dr. Leland Speer and Dr. J. W. Manley of Kansas City, Dr. H. P. Jubelt of Manhattan, and Dr. Max S. Lake of Salina.

Dr. Orville R. Clark, Topeka, then presented the report of the Committee on Necrology, after which Dr. Nelson requested a moment of silent tribute to the physicians whose deaths had occurred during the interval between the 1957 and 1958 sessions.

The treasurer's report was presented by Dr. John L. Lattimore, Topeka, who suggested two special assessments for the 1958-1959 year, one of \$5.00 per member to defray the cost of publishing a history of the Kansas Medical Society and one of \$10 per member as a contribution to the American Medical Education Foundation.

The report of the chairman of the Editorial Board, Dr. Clark, was read, after which he was presented a bound volume of the JOURNAL as a token of appreciation for his efforts.

Supplementary committee reports included two requests from the Committee on Medical Assistants: (1) that Kansas delegates to the June meeting of the American Medical Association attempt to secure support from delegates from other states in soliciting help from the A.M.A. to establish a national office for the medical assistants' group; (2) that the Society help in establishing educational courses for medical assistants in Kansas colleges.

A supplementary report from the Committee on



Mental Health requested Society help in making it possible for graduates of foreign medical schools to serve in state hospitals and institutions without having first passed the Kansas basic science examination.

Dr. Wrightman, as chairman of the committee reviewing councilor and committee reports, read a summary of action requested, embodying 53 separate resolutions.

A resolution approved by the Council, providing for a nursing survey in Kansas, was introduced by Dr. Nelson. Also introduced was another Council-sponsored resolution, having to do with creation of a committee to formulate plans for future Society meetings, the committee to be made up of physicians representing different specialties, general practice, the medical school, and other such groups.

The Committee on Study of Heart Disease asked the Society's cooperation in setting up a research program to be known as "Cardiacs Anonymous."

The Kansas Society of Anesthesiology presented a resolution asking that its officers be included as members of the Kansas Medical Society's Committee on Anesthesiology.

Dr. Nelson announced that delegates from Districts 2, 4, 11, 13, 14, and 15 should caucus before the second meeting of the House of Delegates to elect councilors for three-year periods.

All items of business listed above were referred to the reference committee so that recommendations for acceptance or rejection might be brought to the House at its second meeting.

Dr. Cyril V. Black, Pratt, reported that Dr. Kenneth F. Bascom, Manhattan, had contributed \$750 to the American Medical Education Foundation in 1955, \$1,000 in 1957, and \$500 so far in 1958. An A.M.E.F. citation for Dr. Bascom, who was not present, was given to his councilor for delivery. Dr. Black also announced that a pharmacy in Wichita had contributed \$1,000 to A.M.E.F. instead of sending Christmas gifts to physicians.

There being no further business, the meeting was adjourned.

## Second Session

The second 1958 session of the House of Delegates was held at the Town House Hotel, Kansas City, on Wednesday, May 7, beginning at 11:00 a.m. Dr. Barrett A. Nelson, Manhattan, presided. The presence of a quorum was announced by Dr. A. W. Fegly, Wichita, chairman of the Committee on Constitution and Rules.

Dr. George E. Burket, Jr., chairman of the Reference Committee on Resolutions, presented commit-

tee recommendations on various items of business. The House voted to:

1. Simplify the procedure for election of officers when there are more than two nominees for the same position by holding a primary election at the first session of the House of Delegates and a decisive election at the second session. At the primary election the candidates for each office receiving the fewest votes shall be eliminated, and balloting shall continue until no more than two candidates remain in each race.

2. Approve reports of all officers, councilors, the executive secretary, and the executive assistant.

3. (a) Approve the report of the editor of the JOURNAL, as published in the June issue, and (b) direct that the present high plane of scientific content be maintained in the future.

4. (a) Ask the Committee on Legislation to continue supplying information on the Forand Bill to the membership and (b) ask the president to notify members of Congress from Kansas of Kansas Medical Society opposition to the Forand Bill.

5. Instruct delegates to the American Medical Association to ask the A.M.A. House of Delegates to support the American Association of Medical Assistants and assist in establishing an office for the organization in Kansas City.

6. Ask that the Section of Anesthesiology at the University of Kansas Medical Center offer a course of instruction on the principles of cardiac resuscitation.

7. (a) Ask that physicians and hospitals be instructed to keep adequate anesthetic records and (b) solicit assistance in this project from the Kansas Hospital Association.

8. Reject a request of the Committee on Anesthesiology for organization of a commission to study and evaluate information pertaining to deaths occurring in the operating room, because such study was already in progress.

9. Ask the Committee on Industrial Medicine, in response to a request from the Committee on Anesthesiology, to negotiate with the Workmen's Compensation Commission of Kansas for a new schedule of fees.

10. Approve the work of the Woman's Auxiliary to the Kansas Medical Society and encourage combined meetings of the Society and the Auxiliary at the county level.

11. Implement the Blue Shield plan for comprehensive coverage.

12. Approve plans for observance of the Society's 100th anniversary in accordance with recommendations of the Committee on Centennial, as published in the April issue of the JOURNAL.

13. Approve the testing of vision of children with the standard Snellen test chart at the time of entry into the first, fourth, and ninth grades.

14. Provide emeritus membership (exempt from payment of dues but retaining all privileges of membership) for two classes of persons: (a) any physician 75 years of age or older who has been an active dues-paying member for the preceding 10 years and (b) upon recommendation of the appropriate component society, any active member who becomes totally disabled and unable to practice.

15. Direct the president-elect to make committee appointments in advance so that the list may be announced at the time he takes office as president.

16. Require that the Executive Committee meet at least six times a year.

17. Re-refer to the Committee on Constitution and Rules a plan for selection of a new president in the event of the death, resignation, or removal from office of the incumbent.

18. Reject a request of the Committee on Maternal Welfare that two-thirds of its membership each year be reappointed for the following year.

19. (a) Authorize the Council to appoint persons to represent this Society outside the immediate jurisdiction of this Society and (b) authorize the Executive Committee to make such appointments in emergencies.

20. Approve the five-point program of the Committee on Control of Tuberculosis for organization and maintenance of regional tuberculosis clinics.

21. Approve the six-point outline of the Committee on Control of Tuberculosis for operation of photofluorographic units by the Kansas State Board of Health.

22. Reject a recommendation of the Committee on Control of Tuberculosis to restrict the use of the State Tuberculosis Sanatorium at Norton.

23. Reject a recommendation of the Committee on Control of Tuberculosis that psychiatric services be provided at the sanatorium at Norton by personnel from the Larned State Hospital on the grounds that this is beyond the province of the Society.

24. Take no action on suggestions of the Committee on Control of Tuberculosis for future activities of the group.

25. Adopt a schedule of relative values, as submitted at the first delegates' session, as a formula for creating fee schedules that may become necessary or desired.

26. Name Dr. Conrad M. Barnes, Seneca, as Kansas General Practitioner of the Year and submit his name to the Board of Trustees of the American Medical Association for consideration as the American General Practitioner of the Year.

27. Assess each member of the Society \$5.00 in 1959 to defray publication costs of a book, *A Century of Medicine in Kansas*, to send a copy to each member, and to provide copies for selected libraries and schools in the state.

28. (a) Approve formation of a set of standards for hospitals, from information gleaned from questionnaires to be sent to hospitals to discover prevalent practices, and (b) approve formation of a Voluntary Hospital Commission for Kansas.

29. (a) Approve in principle the objectives of the Kansas Society of Medical Technologists and (b) appoint the Committee on Pathology to serve as liaison between this Society and the technicians' organization.

30. (a) Authorize negotiations with the State Department of Social Welfare for providing medical care for the indigent and (b) reserve for the House of Delegates the power to enter into a specific contract or agreement.

31. Oppose compulsory inclusion of physicians under the Social Security Act and notify members of Congress from Kansas of this stand.

32. Re-refer to the Committee on Medical Economics a study of group insurance to provide hospital benefits up to \$10,000 per family.

33. Direct the Committee on Medical Economics to make available to members of the Society a policy providing benefits for accidental death or dismemberment through a Kansas company or agent or through a company in Chicago, the company chosen to be that which offers the better plan.

34. Urge each component society to add to its local assessment for 1959 an amount of not less than \$10 per member for the American Medical Education Foundation.

35. Approve establishment of a regular weekly radio broadcast to disseminate information on advances in medicine.

36. Approve production of a series of live television shows on special medical topics.

37. Reject a suggestion of the Committee on Public Relations that surgical procedures be televised for public viewing.

38. Recommend that physicians participate in local health workshops.

39. Approve adoption of a code to govern relationships between members of the Kansas Medical Society and members of the Bar Association of the State of Kansas, as published in the June issue of the JOURNAL.

40. Ask each component society to appoint a committee on rural health to assist in preparations for the national rural health conference to be held in Wichita in March 1959.

41. Re-refer to the Committee on Safety a study concerning physical standards for driver licensure, examinations to determine physical condition of applicants, and establishment of fees for such examinations.

42. Approve a program to provide training for ambulance attendants with the assistance of the Red Cross, the University of Kansas School of Medicine, and the director of safety of the Kansas Highway Department.

43. Approve implementation of the Cornell Crash Injury Project when possible.

44. Reject a plan to provide a speaker on safety, trauma, or mass disaster at each annual meeting.

45. (a) Approve the principle of state and local school health councils and (b) recommend local implementation.

46. Thank committee chairmen and members for their services to the Society.

47. Approve consultations with and referrals from licensed osteopathic physicians and surgeons who have passed medical and surgical examinations.

48. Cooperate in a nursing survey now being conducted in Kansas by the Kansas State Nurses' Association, Kansas League for Nursing, and the Kansas State Board of Nurse Registration.

49. Approve formation of a Committee on Scientific Assembly to define policy and outline a format for annual meetings, the committee to be appointed by the president and to include: (a) physicians in general practice and in the various specialties, half of whom shall be from component societies which serve as host for annual sessions, (b) the director of post-graduate education of the University of Kansas School of Medicine, and (c) (in any year after the first) at least half of the members of the committee for the preceding year.

50. Cooperate with the Kansas Heart Association in a study known as "Cardiacs Anonymous."

51. Reject a request of the Kansas Society of Anesthesiology that its officers serve also as members of the Committee on Anesthesiology.

52. Express appreciation to Dr. Burket, Dr. George F. Gsell of Wichita, and Dr. Glenn R. Peters of Kansas City for their services as members of the Reference Committee on Resolutions.

53. Express appreciation to Dr. Barrett A. Nelson, Manhattan, for exceptional leadership during his year as president of the Society.

54. (a) Suspend the rules to permit discussion of a new item of business—housing for the Society, (b) request appointment of a committee to study possible locations for a Society building, (c) request publication of the committee's findings in the JOURNAL, and

(d) defer action until the 1959 meetings of the House of Delegates.

55. Commend Dr. A. W. Fegtly, Wichita, for 25 years of service as chairman of the Committee on Constitution and Rules and as parliamentarian of the House of Delegates.

56. Refer to the Committee on Scientific Assembly the report of a special committee studying the format of state meetings, under the chairmanship of Dr. Norton L. Francis, Wichita, embodying the following ideas: (a) That the first House of Delegates meeting be held on Sunday evening as a dinner meeting; (b) That the program on Monday be devoted to a full scientific meeting made up of sections, including a section on general practice; (c) That a specified time of two to three hours be set aside during the day for a visit to the exhibits, thus eliminating the maze; (d) That the second House of Delegates meeting be held on Tuesday morning as a breakfast meeting; (e) That Tuesday afternoon be devoted to a medico-socio-economic program of general interest; (f) That the president's banquet be held on Tuesday evening; (g) That Wednesday be devoted to entertainment and pleasure; (h) That the Council consider having an interim session of the House of Delegates as a means of expediting the business session of the annual meetings.

At the beginning of the meeting ballots were distributed for the election of officers, and before the meeting was concluded the committee of tellers announced results, as published in the June issue of the JOURNAL. Reports were also heard from five councilor districts on the selection of new councilors for three-year terms, also as published in the June issue of the JOURNAL.

Dr. Nelson expressed appreciation to members of the House of Delegates, to the National Guard, to the Town House Hotel, to the local committees working under Dr. Lewis G. Allen, and to the Wyandotte County Medical Society. He then turned the meeting over to Dr. Thomas P. Butcher, Emporia, new president, who adjourned the session.

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### Booklet on Poison

A new public service brochure, "Poison Proofing Your Home," has been prepared for distribution by Johnson and Johnson, New Brunswick, New Jersey. It dramatizes the problem of accidental chemical poisonings in children, lists common household products most responsible for poisonings, suggests ways of preventing such occurrences, and points out ways of recognizing poisoning symptoms. Copies of the brochure may be received free of charge by request to the publisher.



## BOOK REVIEWS

*Diagnostic Medical Parasitology.* By Edward K. Markell, Ph.D., M.D., and Marietta Voge, M.A., Ph.D. Published by W. B. Saunders Company, Philadelphia. 276 pages, 115 figures with 5 in color. Price \$7.00.

We have fought two wars since 1941 in tropical or subtropical climates. The returning veterans have brought rare and new disease into every area of the country and caused new interest on the part of physicians and medical technologists in parasitology. The volumes that have been available previously attempt to cover all phases of this complex subject which at best is still rather poorly understood by the practicing physician. A welter of confusing tests and a multiplicity of names for any one genus and species has not served to enlighten the clinician faced with a patient ill with an exotic disease.

The authors have prepared a concise volume filled with excellent illustrations and written clearly with a minimum of synonyms. Diagnostic methods are presented lucidly, but only the best procedures are outlined. After each organism is described in detail, brief summaries are given of the salient microscopic features which aid in diagnosis. A separate chapter outlines step by step laboratory methods in diagnosis and supplies details in the preparation of media, solutions, and reagents.

The section on intestinal protozoa is very readable with a complete discussion of *Entamoeba Histolytica*. The line drawings are clear and are supplemented by photomicrographs. Malaria is also adequately covered in the text with colored plates serving as illustrations to show the growth of the parasites. Other chapters treat specific disease in a similar clear readable manner.

Since the book is written as a diagnostic text for medical schools and for technologists, there is only sparse discussion of the clinical state, and almost no therapy is outlined. The bibliography is too brief to be of any value for the parasitologist. Despite these defects the volume is excellent as a diagnostic guide for the physician's office and for the hospital laboratory.—W.J.R.

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*A Guide to Human Parasitology. Sixth Edition.* By Blacklock and Southwell. Revised by T. H. Davey. Published by Williams and Wilkins Company, Baltimore. 222 pages. Price \$7.00.

Due to the minor role of disease caused by human

parasites in the midwest, parasitology as taught in our medical schools is generally incomplete and most often an appendage to one of the major subjects. The midwest medical graduate is poorly equipped to meet the problem of diagnosis and treatment of parasitism when encountered.

*A Guide to Human Parasitology* will be found useful in the identification of parasites encountered in this locale. Written in typical crisp British style, the text is easily read and well indexed. Terminology is condensed to the practical level of the clinician. The illustrations, 119, are excellent but simple and should serve as a valuable guide to identification. A brief paragraph describing life history, pathogenicity, diagnosis, and prevention is included with each parasite. Schematic illustrations as to life cycles will prove quite valuable. Two very useful chapters on the methods of examination of materials are included. Here, concise but simplified methods of smear technique, stool concentration and preservation of materials are given.

The book is disappointing in that no suggestions as to mode of treatment are given. The chapter on the use of the microscope more properly belongs in a text for first-year biology students.

In this reviewer's opinion, this book will prove quite useful to the clinician as a brief, well-written, text for easy reference in the field of parasitology.—L.S.F.

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*Pediatric Index.* Edited by Edwin F. Patton, M.D. Published by C. V. Mosby Company, St. Louis. 639 pages. Price \$13.50.

This is a new type of guide to symptomatological diagnoses and current management. The author has indexed various symptoms and signs of illnesses in the first half of the book and has given the various conditions which might cause them. In the second half of the book he has listed definitive diagnoses and current management. He has attempted to be brief and has succeeded. In the process of being brief he has had to be dogmatic. I am sure that this opens him to considerable criticism, because differences of opinion arise frequently in medical practice.

The book might be helpful to someone who is not familiar with children and their problems. It is not a substitute for the well-written textbook. I am sure the author did not intend it as such, but as an easy reference against which to check one's knowledge.—H.C.M.

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*A Primer on Common Functional Disorders.* By Jack W. Fleming, M.D. Published by Little, Brown

and Company, Boston. 174 pages, illustrated. Price \$5.00.

The author is a practicing internist. This book is especially written for the non-psychiatrist physician who is called upon daily to deal with psychogenic disorders. A positive approach to the diagnosis of functional disorders is presented, and the principles of therapy are discussed in detail. The more common functional disorder syndromes, i.e. the hyperventilation syndrome, headache, gastric hyperacidity and peptic ulcer, irritable gastrointestinal tract, obesity and overeating, allergy, backaches and gynecologic syndromes are dealt with in detail.

This book presents excellent, understandable reading material for all practitioners of medicine.—C.C.G.

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*You Can Increase Your Heart Power.* By Peter J. Steincrohn, M.D. F.A.C.P. Published by Doubleday and Company, Inc., Garden City, New York. 376 pages. Price \$4.95.

This volume is intended to answer questions of the public regarding many phases of cardiovascular disease but dwells primarily on coronary problems, arteriosclerosis, and high blood pressure.

The 50-page introductory section dealing with "imaginary heart trouble" contains many words of wisdom for physicians who may unwittingly cause great anxiety in the patient with minor cardiovascular symptoms. The patient is warned repeatedly that distressing signs and symptoms are often the result of a hyperirritable heart responding to outside factors and the only way to manage these difficulties is by adequate examination, evaluation, and understanding by the patient.

The chapter on coronary disease is well handled. The point is clearly made that each individual case will require individual medical handling through the acute rest phase, the reactivation stage, and return to work stage. General principles are outlined rather than specific details of medical management. Much emphasis is placed upon the philosophy of the coronary patient both in regard to myocardial infarction and angina pectoris.

The section on diet in relation to arteriosclerosis, coronary disease, and hypertension is considered excellent. The author reviews some facts on cholesterol and fats briefly but warns "Don't get diet happy." Here again general principles of weight control and adequate nutrition are emphasized without giving dietary advice based upon incomplete scientific investigation.

The hygiene of daily living in relation to heart

disease discusses obesity, exposure to weather, air travel, tobacco, alcohol, sleep, fatigue, exercise, and relaxation. The author will not be popular with the recent proponents of physical fitness. He indicates that harm may result from irregular exertions of the middle-aged athletes. He advises development of habits of relaxation at an early age and that exercise as such is not essential for health.

Much of this material is presented as answers to letters written to the author through his syndicated health column. It is easy reading and with minor exceptions is considered an informative book for cardiac patients. Each chapter ends with an outlined summary of the important points covered to help the patient review as the book is read.—G.B.W.

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### Volume of Physician Visits

The American people visited their physicians during the months of July, August and September, 1957, at a rate of almost five times a year, according to data gathered through household interviews by the U. S. National Health Survey.

The report, entitled "Preliminary Report on Volume of Physician Visits, United States, July-September 1957," is the first of a continuing series. Special weekly reports on the incidence of upper respiratory diseases have been issued by the Public Health Service for some time.

Future reports in the series will deal with disability, hospitalization, injuries, chronic illnesses, and related health matters.

The report on physician visits points out that the interviews occurred at a time of year when people are normally least likely to call the doctor. The report notes that last year, however, respiratory diseases were probably at above-average levels.

Nine out of 10 of the physician visits were in the physicians' offices, the report shows.

Persons living on farms used physicians' services during the quarter at a rate of 3.6 visits a year, compared with 4.5 for the rural nonfarm population, and 5.1 for the urban population. Visits for general check-ups were somewhat less frequent for the farm population than for either of the other two residence groups.

Health Survey reports are based on continuing nationwide household interviewing conducted for the Public Health Service by the U. S. Bureau of the Census, on a representative sample of the population. The information recorded about individuals is confidential, and only statistical totals are published.

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## Oral Diuril

### *Its Use in Therapy of Chronic Heart Failure*

L. E. PECKENSCHNEIDER, M.D., *and*  
CHARLES POKORNY, M.D., *Halstead*

Modern therapy, including the use of digitalis preparations, low sodium diet, less restriction of activity, and at times anticoagulant therapy, has greatly increased the well being of patients with chronic heart failure. Elimination of edema with its retention of sodium and chlorides has, for the most part, been dependent upon the injection of mercurial diuretics. To better accomplish this result, oral diuretics of the mercurials, xanthines, carbonic anhydrase inhibitors, acidifying salts, and cation exchange resins have been used with some measure of success.

Recently chlorothiazide,\* a substituted benzothiazine compound with a free sulfamyl group, has been introduced. This agent, when given to animals, alters renal secretion of sodium, potassium, and chlorides. It is a most effective diuretic agent when given orally. In abnormal fluid retention associated with heart failure and other diseases, it brings about electrolyte secretions. In heart failure it has been shown to bring about loss of abnormal fluid retention, with some alteration in the electrolytes of the body. According to Freis and associates,<sup>2</sup> no tolerance to repeated dosage is acquired even when the drug is given over a prolonged period of time.

During the past nine months we have been particularly interested in the effect of chlorothiazide as an adjunct in the treatment of cardiac failure, hypertension, and other diseases with abnormal retention of fluid. Recently Fishman and associates<sup>3</sup> reported

an oliguric patient with a rising blood urea nitrogen who became anuric after intravenous chlorothiazide, but who recovered after dialysis. Because of this we have not used chlorothiazide in a patient with an elevated rising blood urea nitrogen.

In our group of 100 patients treated for fluid retention and hypertension, we have found no contraindication for the use of the drug. When an occasional patient complained of nausea, we discontinued use of the drug for a day and then were able to resume administration. We had one patient who complained of weakness during diuresis, after a total of 1 gram of the drug had been given. This patient refused to try it again.

In some patients there has been a decrease in the serum sodium, potassium, and chloride. However, we have not found these values assuming subnormal levels. Nevertheless, because of early reports of reduction in potassium, we have insisted that our patients take extra orange juice as a potassium supplement.

Laragh and associates<sup>4</sup> report hypokalemia and hypochloremia occurring frequently in patients with cirrhosis of the liver. For this reason, patients who

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**Diuril has been found to be an effective oral diuretic in cases of edema due to heart failure with retention of sodium chloride. In 1 gram doses, we have as yet observed no toxic effects. Six case reports are presented.**

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\* Diuril® is a trademark of Merck & Co., Inc. Chlorothiazide was supplied through the courtesy of John R. Beem, M.D.



have evidence of liver disease must be watched more carefully than others.

Bayliss<sup>5</sup> states that in edematous patients in long term studies, sodium and chloride are eliminated in approximately equimolar quantities, the serum bicarbonate level remaining constant. Hypochloremic alkalosis was not encountered. Potassium loss was a problem only in chronically ill patients on rigid sodium restriction who were receiving continuous chlorothiazide. In normal subjects 1 gram of chlorothiazide orally is as potent as 2 cc. of mersalyl by injection.

The onset of action of chlorothiazide is rapid, occurring within two hours after oral administration. The peak is between 4 to 6 hours, with the major action being complete in 6 to 8 hours, though there may be some effect up to 12 hours. The major saluretic and diuretic effect of the compound is over a 6-to 12-hour period. Thus it is possible to space dosage of the drug so that the patient may enjoy uninterrupted sleep.

Beyer<sup>6</sup> reports that while chlorothiazide has the structure of a carbonic anhydrase inhibitor, it has an enhancing effect on salt and water excretion comparable to that of a potent organomercurial diuretic. Chlorothiazide causes no change in urinary pH, no metabolic acidosis and has continuous effectiveness.

If the sulfamyl group is blocked by alkalization or

substitution, it becomes inactive. It is active under experimental ammonium chloride acidosis and sodium bicarbonate alkalosis. The compound is of low toxicity when administered in either acute or chronic cases.

While chlorothiazide is capable of producing electrolyte imbalance as well as alkalosis in some patients, we have not encountered any difficulty with doses of 1 gram per day or less. It has been demonstrated that interrupted dosage lowers the chance for electrolyte imbalance.

Some investigators have reported that resistant edema in heart failure will at times respond to combined doses of chlorothiazide and a mercurial diuretic. Care must be taken not to confuse these patients with those having a low sodium syndrome.

To date there have been no reports of hematopoietic, hepatic, or central nervous system toxicity. Mild paresthesias have been observed occasionally. In addition to hypokalemia and hypochloremia occurring in patients with cirrhosis of the liver, there has been a report of erythema developing in one patient. The condition cleared when the drug was stopped.

### Case Reports

Case 1. A 66-year-old man, a school custodian, was admitted to the hospital on December 2, 1957, because of shortness of breath. Three months previously he had suffered a myocardial infarct and for the past two months he had become progressively shorter of

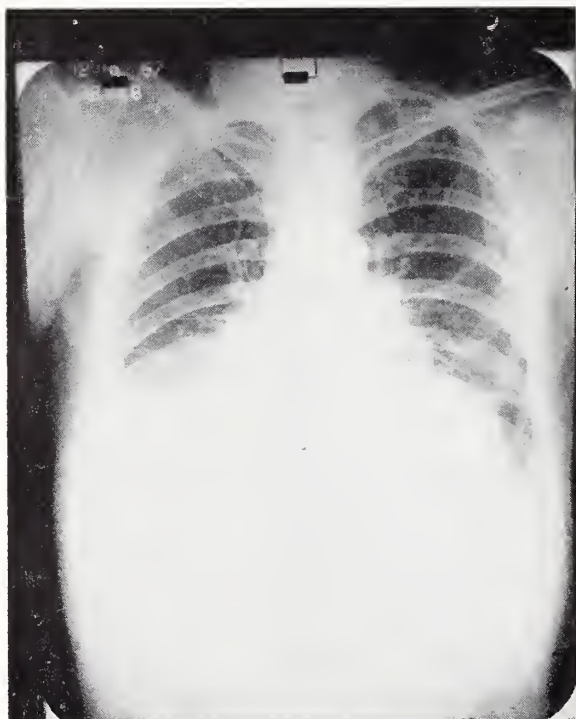


Figure 1-A. X-ray findings of Case 1, December 9, 1957.

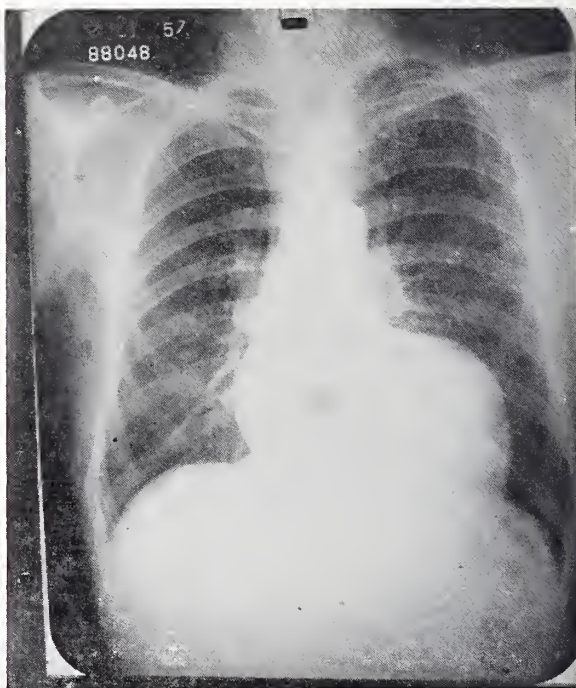


Figure 1-B. X-ray findings of Case 1 after 18 days of Diuril.

breath, although he had been digitalized and given mercurial diuretics. His blood pressure was 132/80, pulse 100, and there was bilateral pleural effusion. He was dyspneic; the skin was cold and clammy, and there was mild cyanosis. The heart was enlarged to the left. There was limited motion of the lungs with flatness of the bases and absent breath sounds. The liver was down four fingers. Peripheral edema was 2 plus.

The patient was placed on a moderately low sodium diet and given whole leaf digitalis and chlorothiazide. On admission the hemoglobin was 12, hematocrit 38, white blood cells 10,500, sedimentation rate 46, blood urea nitrogen 16.9, and the urine contained a trace of albumin. When he was dismissed on December 12, 1957, he had lost 20½ pounds, had no pedal edema, and had only a minimal pleural effusion. Chest x-rays are shown in Figures 1-A and 1-B.

Case 2. A 68-year-old housewife entered the hospital September 1, 1957, because of marked shortness of breath and almost continuous edema of the extremities for the preceding eight months, with no relief from diuretics of any type. She had had "inflammatory rheumatism" at the age of 18. Her blood pressure was 156/86, pulse 96 and irregular; there was marked dyspnea, dependent cyanosis, and 3 plus peripheral edema. Urine was normal. There were rales in the lung bases with impaired percussion note. The heart was enlarged to the left, irregular in rate and rhythm, and

presystolic apical murmurs were heard. The gall-bladder contained several non-opaque stones.

The patient was placed on a low sodium, low fat diet and given digoxin 0.25 mg. and Diuril. On dismissal, September 12, 1957, the patient had lost 21 pounds and had no peripheral edema. She has continued to do well. She remained edema-free on Diuril, although before admission, weekly mercurial diuretics had been required.

Case 3. A 55-year-old man, a Rock Island railroad track supervisor, was admitted to the hospital October 30, 1957, because of progressive shortness of breath with tachycardia. Just before admission he had developed orthopnea. His pulse was 120, blood pressure 120/80; there was 4 plus edema of the extremities; the heart was enlarged, and bilateral hilar congestion of the lungs was present.

He was placed on digitoxin and Diuril three days a week. During his stay, digitalis was discontinued for a time because of nausea. The hemoglobin was 10.5, hematocrit 32, white blood cells 7,450, the sedimentation rate 65; the urine was free of albumin. At the time of his dismissal, November 6, 1957, he had lost 25 pounds. Although he has a malignant lymphoma, he has done well insofar as his cardiac status is concerned. Chest x-rays are shown in Figures 2-A and 2-B.

Case 4. A 52-year-old housewife entered the hospital October 30, 1957, because of shortness of breath,

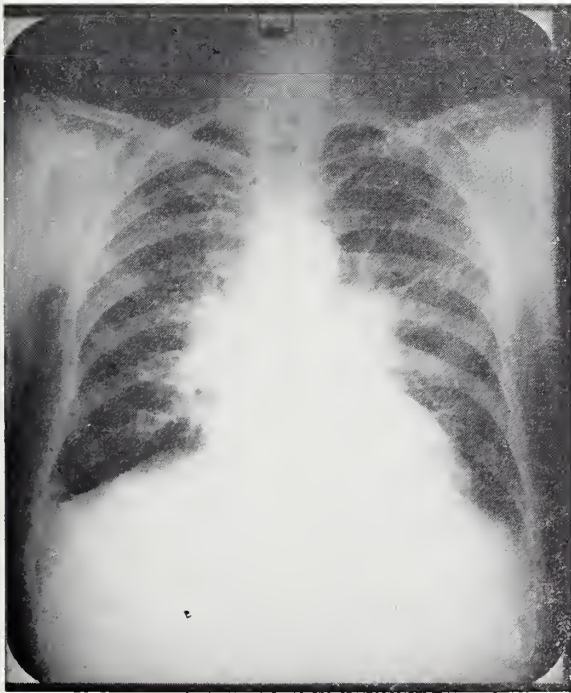


Figure 2-A. X-ray findings of Case 3, December 6, 1957.



Figure 2-B. X-ray findings of Case 3 after 3 days of Diuril.



edema of the extremities, and a cough which had developed since having influenza and pneumonia six weeks prior to admission. Her blood pressure was 166/110, pulse 88, peripheral edema 2 plus; the heart was enlarged; the lung fields were clear, and the liver was down five fingers.

The patient was placed on digitalis, Diuril, and bedrest together with a low salt diet. The hemoglobin on admission was 12.5, hematocrit 41, white blood cells 5,850; the urine contained 2 plus albumin and casts. On dismissal, November 6, 1957, the patient

was improved. There was no edema; she had lost 11 pounds, and the liver was not palpable.

Case 5. An 81-year-old retired blacksmith entered the hospital in a wheel chair on February 23, 1958, complaining of pain in his upper chest over a period of two years. This had been gradually getting worse the past four months. Exertion or excitement caused the pain to become more severe. He was short of breath and coughed some, raising clear sputum. His feet and legs had been badly swollen the past four weeks, and this swelling did not subside at night.

TABLE 1  
EFFECT OF DIURIL ON PLASMA ELECTROLYTES

<i>No. of Case</i>	<i>Chart No.</i>	<i>Sex</i>	<i>Age</i>		<i>No. of days on Diuril</i>	<i>Weight in pounds</i>	<i>Sodium mEq./Liter</i>	<i>Potassium mEq./Liter</i>	<i>Chloride mEq./Liter</i>
1.	28807	M	66	Start of drug 12-4-57		147	145	4.8	104
				After therapy 2-25-58	70	126½	145	4.7	112
2.	27711	F	68	Start of drug 11-5-57		155	137	4.9	109
				After therapy 11-18-57	13	136	120	5.2	89
3.	28877	M	55	Start of drug 12-6-57		139	143	4.5	114
				After therapy 12-9-57			147	4.9	106
				12-16-57	10	123½			
4.	28432	F	52	Start of drug 10-30-57		170	153		113
				After therapy 11-6-57	6	159	152	5.2	96
5.	29844	M	81	Start of drug 2-23-58		164	143	5.6	109
				After therapy 3-5-58	10	134	148	5.1	107
6.	29079	M	57	Start of drug 12-30-57		180	140	5.0	107
				After therapy 1-11-58	12	150			
7.	29054	M	51	Start of drug 12-26-57		194	135	4.9	96
				After therapy 1-20-58	25	187½	142	4.7	105
8.	28199	F	70	Start of drug 10-10-57		118½	143	4.7	108
				After therapy 3-3-58	142	114	148	4.2	104
9.	29685	M	61	Start of drug 2-11-58		166	145	4.5	110
				After therapy 2-21-58	10	160½	146	3.9	104
10.	29690	M	68	Start of drug 2-10-58		186	140	5.4	107
				After therapy 3-1-58	19	177	140	4.0	100
11.	27958	F	54	Start of drug 10-28-57		220	152	4.3	96
				After therapy 11-4-57	7	190	142	3.9	100
12.	28897	M	60	Start of drug 11-18-57		183	142	4.6	107
				After therapy 12-9-57			143	3.6	104
				1-10-58	53	187½			
13.	28763	M	19	Start of drug 11-29-57		184½	147	4.0	107
				After therapy 2-15-58	47	185	141	4.2	109



His blood pressure was 140/90, pulse 104 and regular in force and rhythm; the vessels were sclerotic. The heart was found to be greatly enlarged to the left, and no murmurs were heard. There were crepitant rales heard in the bases of both lungs. The liver edge was palpable. There was no fluid wave. The feet and legs were edematous, the edema extending upward to the knees. The urine contained 1 plus albumin and many white blood cells. The blood count was normal. Sedimentation rate was 33 mm. per hour. Liver function tests were normal.

The patient was given Diuril 0.5 gm. twice daily and digoxin 0.25 mg. four times daily for three days, then 0.25 mg. once daily after breakfast, and he was placed on a low salt diet. His weight on admission was 164 pounds; on dismissal 134 pounds. He left the hospital free of edema, his lungs were clear, and the x-ray film of his chest showed the heart to be reduced in size.

Case 6. A 57-year-old man, a service station attendant, was admitted December 27, 1957, because of shortness of breath and swelling of his legs for the past six months. He had mild diabetes, was drowsy during the daytime, but slept poorly at night. He had gained 40 pounds in the preceding two weeks. His blood pressure was 145/90, pulse 72. The neck vessels pulsated, the heart was enlarged to the left, and extrasystoles were noted. Crepitant rales were heard in both lung bases, and an abdominal fluid wave was present. The liver edge was palpable. There was 4 plus edema of the legs. The expression was mask-like and he spoke in a monotone.

Initially, he was given digoxin, Diuril 1 gm. daily, triple K dr. 1 twice daily. A low salt diet was ordered. The urine contained 1 plus albumin on admission and

none on dismissal. Blood urea nitrogen on January 9 was 13.1. He was dismissed January 11, 1958, still complaining of shortness of breath and aching extremities. His lungs were clear to percussion and auscultation; he had lost 30 pounds.

Table 1 shows the effect of the administration of 1 gram of Diuril per day on the electrolyte pattern in 13 patients with hypertension, cardiac failure, and other diseases causing fluid retention. Cases 1, 2, 3, 4, 5, 6, 8, 9, and 10 all had heart failure from various reasons; Case 7 had chronic nephritis; Cases 11 and 13 had severe hypertension; Case 12 had hypertension and a non-functioning pyelonephritic kidney. Patient 2 has now been on chlorothiazide six months. She continues to do well, is now able to do her housework, and apparently is well compensated.

Hertzler Clinic and Research Foundation  
Halstead, Kansas

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He who looks with pride upon the history which his fathers have written by their heroic deeds, who accepts with gratitude the inheritance which they have bequeathed to him and who highly resolves to preserve this inheritance unimpaired and to pass it on to his descendants enlarged and enriched, is a true American, be his birthplace or his parentage what it may.

—*Lyman Abbott*

# Bladder Action

## *A Study of Effects of Banthine and Urecholine*

ELDON M. FILLMAN, M.D., *Topeka*

The smooth muscle of the bladder is brought under voluntary control by means of the cortical regulatory tract, a part of the pyramidal system. As the bladder fills with urine, the detrusor of the bladder progressively relaxes until the volume reaches 300 to 500 milliliters. At this point, the bladder detrusor contracts. This is associated with a desire to urinate. The rise in intracystic pressure produces parasympathetically controlled relaxation of the internal and external sphincter, and micturition proceeds.

The proprioceptive sensations of filling and distension are mediated through the afferent fibers of the parasympathetic nerve, S 2, 3, 4. The stimulus is transmitted in the posterior columns of the spinal cord (fasciculus gracilis) to the sensory cortex. Stimuli of the cortical regulatory tract normally inhibit the motor limb of the sacral parasympathetic nerve from discharging until it is consciously released. The striated external sphincter innervated by the pudendal nerve (S 2, 3, 4) can be voluntarily closed but not opened.

Alteration of bladder function occurs with damage to the nervous system. The uninhibited neurogenic bladder results from interruption of the pyramidal tracts above the sacral segment. Sensation to filling is intact. The bladder functions without cortical regulatory control. Urination is frequent and precipitate, as in the infant. Nocturnal enuresis is common. This type of bladder may also be present in patients with such conditions as cerebral hemorrhage, brain tumor, cord tumor, and multiple sclerosis.

An automatic bladder is one devoid of sensation or pyramidal control. It functions under the control of the afferent and efferent limbs of the sacral parasympathetic arc. The bladder is usually spastic.

Contractions are variable and may be ineffectual.

Destruction of the sacral segment of the spinal cord or cauda equina results in a denervated bladder. This bladder will have only spasmodic, weak contractions due to the inherent property of smooth muscle. Generally atonicity is present unless infection or other complications supervene to produce a hypertonic-type bladder. Neurogenic bladders in general are characterized by an imbalance between the action of the detrusor and the external sphincter.

Methantheline bromide, Banthine®, was selected as a typical anticholinergic drug. It blocks postgan-

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**Tracings made with the Lewis cystometer illustrate the effects of two drugs on bladder pressure, contractions, relaxation, and capacity.**

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glionic neuromuscular junctions and autonomic gangli. Pro-Banthine® has greater potency and causes fewer side reactions. The only side reaction encountered with a 30 milligram dose given subcutaneously was marked dryness of the mouth and pharynx.

Bethanechol, Urecholine®, was used as the drug with parasympathetic activity (cholinergic effect). It acts peripherally on neuro-effector sites in a manner similar to that of acetylcholine. Side reactions include flushing of the face, sweating, salivation, and slowing of the pulse. These reactions can be abolished by atropine. Urecholine should be given orally or subcutaneously, never intramuscularly or intravenously.

Tracings were made with the Lewis cystometer which measures intravesical pressure during continu-

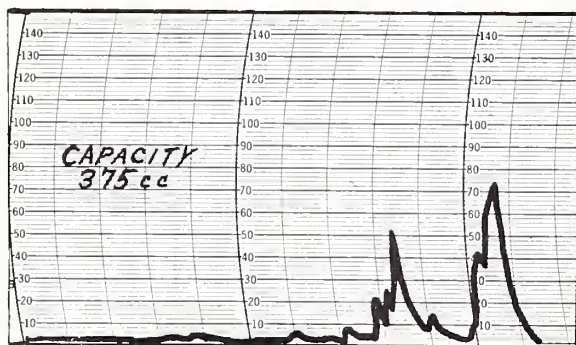


Figure 1-A

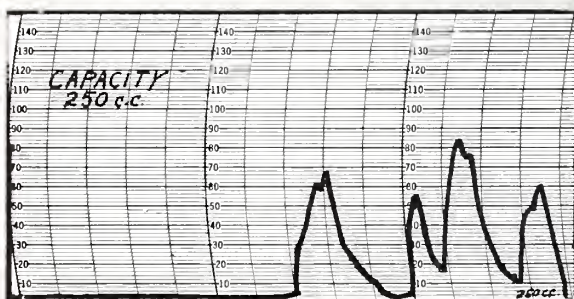


Figure 1-B



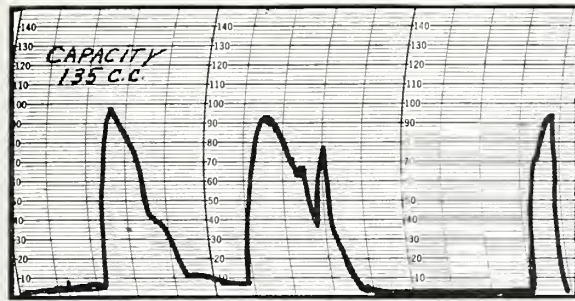


Figure 2-A

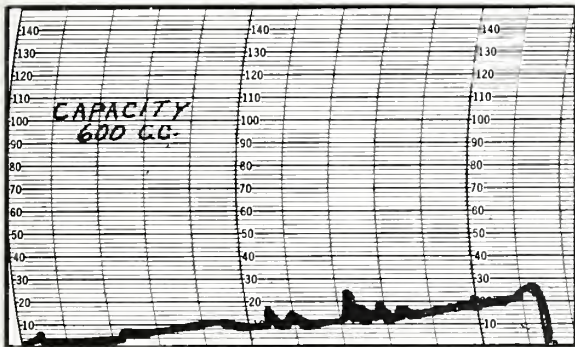


Figure 2-B

ous flow filling of the bladder through a catheter. About 20 cystometrograms were made. Typical examples will be presented:

Figure 1-A is a normal cystometrogram. Bladder pressure is low until the physiological capacity is reached. A bladder contraction then occurs, associated with a desire to urinate. If this desire is suppressed, as it was in this case, the detrusor relaxes again, but this is shortly followed by a stronger contraction and sense of urgency.

In Figure 1-B, five milligrams of Urecholine was given subcutaneously and the cystometrogram was taken ten minutes later. Note that the contractions are stronger and the bladder capacity less.

Figure 2-A is a tracing of a highly spastic reflex bladder, the result of transverse myelitis at T 6. The introduction of small volumes of water into the bladder produces strong, sustained detrusor contractions. The capacity was 135 milliliters. Note the change (Figure 2-B) 20 minutes after subcutaneous administration of 30 milligrams of Pro-Banthine. Bladder contractions are almost abolished. The capacity is increased to 600 milliliters.

Figure 3-A is the cystometrogram of a patient with multiple sclerosis and an uninhibited bladder of small capacity, 40 milliliters. After 30 milligrams of Pro-Banthine were administered subcutaneously, bladder contractions were weak and the capacity was more than doubled.

These cystometrograms illustrate the powerful

effect on the urinary bladder of autonomic drugs used in therapeutic doses. Pro-Banthine has clinical importance in such conditions as spasm due to inlying catheter, postoperative prostatectomy, and interstitial cystitis. It is used to control enuresis in the neurogenic, uninhibited bladder.

Urecholine has its greatest usefulness in postoperative urinary retention not due to vesical neck obstruction. When given subcutaneously in 2.5 milligram to 10 milligram doses, it has a powerful action on the bladder. For the same effect orally, 30 to 40 milligrams must be used.

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Topeka, Kansas

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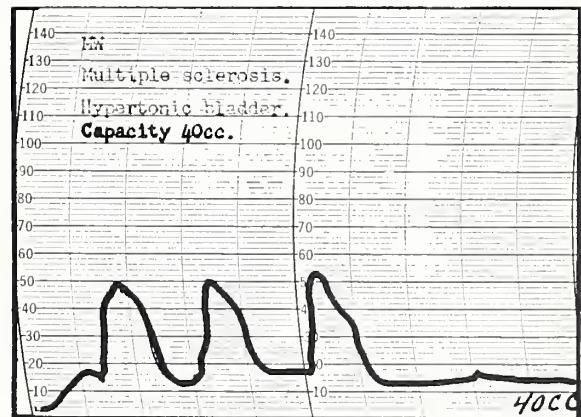


Figure 3-A

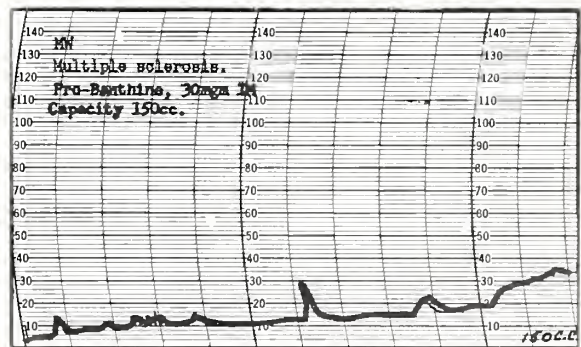


Figure 3-B



# Low Back Pain

## *Emotional Factor as a Cause*

PRESCOTT W. THOMPSON, M.D., *Topeka*

Perhaps I can best illustrate the role of the "emotional factor" in low back pain by telling of a man I saw in consultation about a year after an industrial accident, and several months after the end of consequent litigation. He had fractured a lumbar vertebra and continued to have low back pain and weakness, even after a settlement was reached. Through talking about this man I believe I can say something about the "emotional factor" as it applies to many of our patients who complain of pain in the low back.

A 50-year-old railroad mechanic fell off a train. The train was traveling slowly but "it jerked." He had hung on trains which had jerked many times before and he had never fallen off, but this time he fractured a lumbar vertebra, and of course his back hurt. But what caused the pain? It seems obvious that some of it was caused by the tissue injuries, but, as we found out later, it was much more complicated than that.

At the time of the accident he had been depressed for some time. His wife had died some months earlier. He sometimes reflected that he did not care what happened to him, that he might be better off dead. He was in this frame of mind when he fell off the train. He did not do it "on purpose"; it was truly an "accident." But it occurred under the circumstances just described.

Curiously enough, the patient felt better immediately after the accident than before. I believe there were two reasons for this. First, he was depressed, and the depressed person sometimes feels better when external events are a little rough. A second reason why the accident actually produced some relief of pain was that physical pain and even the discomfort of a cast were more endurable to this man than the psychological pain which he had experienced prior to the accident. Anyone who has been deeply depressed knows that physical pain is more tolerable than depression, or guilt, or anxiety, or other emotional pain. Either way, it hurts!

The pain in his low back thus served both as a signal of a local injury and as a substitute for a pre-existing psychological pain. Obviously, the fact that the pain was now localized in the low back had to do

with the fact that he did have a back injury. Furthermore, having a pain in the back had the added advantage of being compensable. He later sued the railroad and collected a sizable sum. The back injury was assumed to have caused both his immediate pain and the subsequent disability.

Why should this man continue for many months to be disabled? He kept complaining of low back pain and weakness after excellent orthopedic care with complete healing of the fracture in good position, and with months of appropriate exercises and physiotherapy. The injury should have punished him enough to relieve his depression, and he should have recovered.

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**Factors of guilt, resentment, self-punishment, dependency, and self-reproach often contribute to back pain and its perpetuation. The case reported here illustrates this concept.**

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To explain what ends his continued pain served, and thus why it persisted in spite of tissue healing, let me stress that this patient was a hard-working man who had been dependent upon his wife, whom he had recently lost. Note that I carefully point out that this man was a hard worker. I want to make it clear that dependency and hard work often go together. As a matter of fact, working hard and being financially independent helped this man hide from himself the fact that he was emotionally so dependent. I believe that this combination is characteristic of people with back pain.

At any rate, this man had strong feelings about his wife's death—resentment that she had left him, mingled with grief. A self-respecting man like this one would naturally feel guilty about resenting the dying of his wife! He would also be ashamed of acting like a baby—that is, feeling sorry for himself that his wife was no longer there to take care of him.

So far I have noted the factors of guilt, resentment, self-punishment, the substitution of preferred physical pain for psychological pain, dependency, self-reproach, and covering up dependency by hard work. I think we will find all of these things in many patients who complain of back pain.

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Contribution to a panel discussion on low back pain presented at the Golden Belt Medical Society meeting, Junction City, April 10, 1958. Other participants: W. David Francisco, M.D., Moderator; Joseph Gendel, M.D.; Paul L. Nelson, M.D.; Paul Schraer, M.D.; and Robert Woods, M.D.

The further course of this man's disability, and some of the psychological processes involved, can be summarized as follows: He demanded from the company through continued illness and litigation what he wanted from his wife, but of course could no longer get; that is, gratification of his wish to be taken care of. He told through the body language of his disability and weakness how it made him feel to be abandoned by his motherly wife he needed so much. At the same time, he punished himself for trying to get so much by his pain and unhappiness. He justified his complaint against his wife, and his demandingness, by a continuing physical symptom. This, of course, is another good reason for developing physical pain in preference to psychological pain. We are more likely to get what we want if we "hurt" than if we just feel bad. In our society, if we feel bad we are supposed to pull ourselves together, but if we can develop a headache we can more easily justify taking some aspirin or a day off.

These mechanisms were not conscious efforts to get or to deceive, any more than the patient's original accident was a conscious effort to hurt himself. His back pain and weakness were real, and he felt perfectly justified in his demand for a sizable cash settlement since his livelihood did in fact depend upon his back being in good shape. He would have strenuously denied in all honesty that he wanted from the company more than he deserved, and it would have made no sense to him to say that he was resentful toward his deceased wife, and that these feelings had to do with the perpetuation of his symptoms.

Such feelings and reactions can be uncovered gradually if the doctor is aware that they do contribute to back pain or to its perpetuation, and if he takes time to listen to what the patient is saying about himself. At the time that the patient is talking about his feelings, he will also often be listening to what he is saying. It is only in this way that he can be helped to see how his feelings contribute to his pain. This is what we attempt to do in a psychiatric consultation, or in treatment. In this case, the patient did later understand what he was doing, and his insight made it possible for him to get rid of his symptoms and to get back to a happier, more comfortable life and job.

It is not always possible to accomplish this, and the family physician is often in a more strategic position to do this than is the psychiatrist, particularly because the earlier a man begins to talk about his life situation and his feelings, the less likely he is to continue to use his aches and pains for unconscious purposes. And his gratitude for the doctor's interest makes him more likely to talk. I realize it takes time and that it is hard to do in a two- or three-bed ward, but it takes less

time than one may think, and much of it can be done in the course of taking the usual history and doing a complete physical examination.

Let me give a brief example of how not to do it. Then I will suggest how to do it better. The doctor is talking to a patient who has just been admitted to the hospital with back pain.

*Doctor:* Who are you angry at?

*Patient:* (Already defensive) Are you kiddin', Doc?

*Doctor:* No. You must have been angry, or something. A psychiatrist said so.

*Patient:* Those head-shrinkers are nuts. Besides, I ain't mad at anybody.

*Doctor:* (Flustered but regaining his composure) Well, then, what caused the ache in your back?

*Patient:* I told you, Doc. I fell off the ladder and I couldn't get off the ground, and now it hurts every time I move.

(At this point, the doctor uses a better interviewing technique.)

*Doctor:* Can you tell me how you happened to fall?

*Patient:* I have never fallen before. Some stupe didn't set the ladder right.

*Doctor:* (Noting hostility toward fellow employee) Sounds like a pretty careless guy.

*Patient:* I should have checked it myself. I guess I wasn't feeling right that day.

*Doctor:* Oh?

*Patient:* One of my kids was sick and my wife said she wanted to go visit her mother. I didn't think she ought to go until the kid was okay.

*Doctor:* What happened?

*Patient:* We had a fight and she said she was going anyway. I guess I got pretty mad.

And so on. You will note that the doctor doesn't tell the patient how he feels, but helps him to talk about it. When his wife comes to visit, he will feel better about her if he has talked about his anger. Also, being a little less angry, and having told the doctor about what actually happened, he is less likely to lie in bed the next few days getting madder and madder at the "stupe" who didn't set the ladder right, and building up a good compensation case. His course in the hospital will be smoother, and the "emotional factor" will be less important.

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# Mental Deficiency

## *A Proposal for Care and Prevention*

CHARLES M. POSER, M.D., and  
FRANKLIN R. MILLER, M.D., *Kansas City*

The state of Kansas can be justly proud of its internationally famous mental health program. Its pioneer efforts in the care and rehabilitation of the mentally ill have also been applied to the emotional problems of childhood and adolescence, and great strides are being made in child guidance and juvenile mental health programs. The psychiatric approach has also been extended to the care, training, and rehabilitation of the mentally defective child who has become an inmate of one of the state institutions.

This emphasis upon the psychiatric aspects of mental deficiency has, however, tended to obscure the fact that in the overwhelming majority of cases, the underlying defect is in an anatomical, biochemical, or physiological disturbance of the central nervous system. In other words, a functional approach is being applied to the solution of an organic problem. On the one hand, these efforts on the part of psychiatrists have not been wholly fruitless, since mental deficiency brings along with it many psychiatric and social difficulties. On the other hand, pediatricians and neurologists have failed to devote sufficient time and attention to these problems.

Now that neurology is at last emerging from its purely descriptive origins and entering a new dynamic and therapeutic era, problems of mental deficiency are again claiming the attention of the neurologist and the neurosurgeon. During the last few years the investigations of geneticists, biochemists, clinicians, neuropathologists, endocrinologists, and nutrition experts have begun to discover some of the etiological factors underlying mental deficiency. With these discoveries have come the knowledge that, at least in some instances, mental deficiency is a preventable disease.

At present, the state of Kansas maintains two hospitals and training centers for mentally retarded children. The institution at Parsons admits patients between the ages of 6 and 22 years who are considered trainable, while the hospital at Winfield is devoted to those children whose handicap is so great that no serious hope can be entertained of returning them to society. It is noteworthy that both these institutions are located quite far from the state's own center for

medical education and research, the University of Kansas Medical Center.

Admission procedure for patients to enter either of these two hospitals is initiated by the family physician through the local county department of welfare. The application is then reviewed by a pediatrician, a psychologist, and a social worker. At no time is the child, before hospitalization, examined by a medical person who specializes in the study of, or who has experience in, the various forms of illness that result in severe mental deficiency leading to institutionalization. At no time is he subjected to a battery of pertinent laboratory tests.

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**The care, training, and rehabilitation of the mentally defective child will always be important functions of state institutions. The obligation to prevent mental deficiency, when possible, should also be stressed. A five-point program to achieve this objective is outlined.**

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Examination of the records of patients at the Winfield State Hospital and Training Center reveals that certain patients were admitted for purely social reasons. Even though there is no doubt that in some cases social reasons may indeed be important, experience has made abundantly clear that many retarded children will thrive and achieve some form of adjustment when provided with normal parental care and affection but will hopelessly deteriorate when placed in even the best run institutions.

In some instances, children have been taken into the institution after the parents had refused corrective surgical measures which might have prevented development or aggravation of the mental deficiency. Too many times incorrect diagnosis by honest but insufficiently trained physicians has led to institutionalization of children whose lives might have been entirely different had the proper diagnosis been made early enough and corrective measures, medical, nutritional, or surgical, been taken before deterioration of the brain became irreversible.

In another area of disability the state of Kansas, through its Crippled Children's Commission, provides

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From the Section of Experimental Neurology, University of Kansas Medical Center, Kansas City, and the Winfield State Hospital and Training Center, Winfield.



care almost exclusively for children who are not institutionalized but who have a motor disability in some manner related to cerebral palsy. The fact that the majority of children so handicapped suffer from various degrees of mental deficiency has hardly been recognized. By statute, only two types of physicians are recognized by the commission as capable of caring for these patients, orthopedists and plastic surgeons.

Some progress has been made in establishing a better mechanism for evaluating the abilities of children who are put in the care of this commission. Clinics at the University of Kansas Medical Center employ a team consisting of orthopedic surgeons, a neurologist, a pediatrician, a speech therapist, psychologists, a psychiatrist, an ophthalmologist, a dentist, and an occupational therapist. The child undergoes a battery of physical examinations and laboratory and psychological tests. Further diagnostic procedures can be undertaken, but, regardless of the nature of the underlying condition, these are still under the direction of the orthopedic or plastic surgeon.

The urgency of such thorough investigation has been emphasized by the fact that research workers have already pointed out possible means of eliminating some forms of mental deficiency. It is now known that what has been called "epileptic deterioration" results not necessarily from the disease itself, but rather from the repeated episodes of anoxia to the brain with each convulsive seizure, from the repeated episodes of cerebral trauma which may occur. This is especially true when the child's delicate brain is subjected to these repeated insults. Present neurological therapy can provide full control for as high as 75 per cent of epileptics. Early initiation of anti-convulsant therapy will result in prevention of this form of mental deterioration.

Phenylketonuria, or phenylpyruvic oligophrenia, is an inborn error of metabolism characterized by failure to oxidize phenylalanine to tyrosine and the excretion of abnormally large amounts of phenylpyruvic acid. This disease results in severe mental deterioration. Ten such patients are now inmates of the Winfield State Hospital and Training Center. It has been shown recently that if the disease is discovered early enough (and it should be added that the diagnosis is extremely easy to make), and such children are placed on a phenylalanine low-diet, there is a good possibility that they will develop normally.

Certain forms of hydrocephalus and of premature closure of the cranial sutures can be corrected if neurosurgical procedures are done early enough in life. Various severely crippling diseases of the basal ganglia with abnormal movements can be remedied by new neurosurgical techniques and such patients can be saved from institutionalization. Swift recognition and adequate treatment of cretinism and other en-

docrinopathies, as well as of congenital syphilis, should have eradicated those diseases, yet their victims are still to be found in our state institutions. Scores of patients at the Winfield State Hospital and Training Center have been classified as "simple or idiopathic" mental defectives. Work in progress at some of the leading medical centers in this country has demonstrated that in some of those cases a biochemical abnormality lies at fault.

Lack of personnel, money, and laboratory facilities has severely hampered any effort toward undertaking historical and genetic investigation of the patients' background. Research of this type might provide clues as valuable as were those found by Gregg in rubella during prenatal life and by Hicks in exposure to radiation. The influence of nutritional factors and the so-called benign exanthemata of childhood has been neglected in favor of elaborate social and mental histories of the mental defective's parents and grandparents.

There is no question that the care, training, and rehabilitation of the mentally defective child will always be important functions of the state institutions. To these functions must now be added that of preventing mental deficiency. Our state institutions should become research institutions as well as centers for care and training.

A suggested program of steps to be taken toward this goal follows:

1. Familiarize family physicians with the different forms of mental deficiency, the important etiological factors, and the methods available at present for prevention or correction of mental deficiency. An educational program of this nature is already in effect at the University of Kansas Medical Center. Undergraduate teaching in neurology and neurosurgery and state hospital preceptorships should inculcate these facts in medical students. Educational efforts directed at physicians in practice take the form of postgraduate study in neurology and neurosurgery and in circuit courses. A greater effort is needed in this latter endeavor.

2. Establish a new procedure for admission of the mentally defective child to a state institution. This preferably should be done through a diagnostic center located where it can be adequately staffed by well-trained pediatricians, neurologists, neurosurgeons, orthopedic surgeons, psychiatrists, and other personnel concerned with the problem of mental deficiency. Nearness to centralized medical facilities would in some measure alleviate the difficulty of obtaining well trained personnel. No child should be admitted to an institution for mental defectives unless such admission is recommended after thorough examination and study at the diagnostic center. This in itself should help decrease the number of new admissions to

the state institutions. The diagnostic center would recommend home care if this were deemed most beneficial to the patient and his family. Corrective surgical or medical measures should be available at the diagnostic center, or, if preferred, could be performed by the patient's own physician.

3. Extend care provided by the Kansas Crippled Children's Commission to include the mentally deficient child so that financial help would be available when home care is deemed advisable. This type of help should cover medications, special diet and appliances, speech and physiotherapy, and psychiatric help either in the home, in out-patient clinics, or by the family physician.

4. Provide funds for establishing a research program devoted to study of various aspects of mental deficiency. Such a program could be conducted either at the University of Kansas Medical Center or at one of the state institutions. All patients admitted to the state institutions should be available for such investigations in the same manner as are patients in the university hospitals. In addition, investigation of pathological material remains the single most important source of information. Postmortem examination of patients who die in institutions for the mentally defective should be carried out as frequently as possible by informing the guardian of the great value of this procedure.

A neuropathological laboratory and a biochemical laboratory with the necessary equipment for electrophoresis, paper chromatography, biological assays, and other techniques must be the nucleus of such a research program. Work in progress at other medical centers has clearly indicated that detailed investigation of protein, lipid, carbohydrate, and trace metal metabolism as well as of endocrine and nutritional factors

will eventually provide clues to many forms of mental deficiency. These biochemical and neuropathological studies have already solved problems that had baffled medicine for many years.

5. Reappraise the existing training and rehabilitation program for the mentally defective child. It is an inescapable but unfortunately rarely admitted fact that there are children with such severe degrees of mental deficiency that no expenditure of time, money, or effort will ever help. A great many children undergo extensive physiotherapy and corrective orthopedic procedures but will never be able to speak or tend to their bodily needs. Every man-hour and every dollar spent on such children may be better spent on those with greater over-all potential. Certain cases must be recognized as purely custodial in order to devote more intensive effort to more promising ones, although measures to make custodial patients as self-sufficient as possible should be encouraged.

Medical progress has resulted in a continuing decline in infant mortality and prolongation of adult life. The rate of discharges from state institutions is well below the number of new admissions, and this disparity will inevitably continue to grow as more defective children are kept alive and as inmates of state institutions survive for longer and longer lives. From a purely economic point of view, prevention of mental deficiency can be cheaper than care for increasing numbers of such patients. From the human standpoint, the avoidance of the heartbreak and tragedy of mental deficiency is of incalculable benefit to all concerned, including the state.

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We listen too much to the telephone and we listen too little to nature. The wind is one of my sounds. A lonely sound, perhaps, but soothing. Everybody should have his personal sounds to listen for—sounds that will make him exhilarated and alive, or quiet and calm . . . as a matter of fact, one of the greatest sounds of them all—and to me it is a sound—is utter, complete, silence.

—*André Kostelanetz*

## Maternal Death Study—Case History

The patient, a 20-year-old primipara of the lower income group, died in a general hospital following the delivery of a 7-pound, 12-ounce liveborn infant. Certificate diagnosis was "cerebral vascular accident." There was no autopsy or staff discussion.

Prenatal care was initiated in the second month of pregnancy and was apparently adequate in quantity and quality, there being no abnormalities recorded prior to the onset of labor which was spontaneous at term. When the patient was admitted to the hospital after one and one half hours of labor, the cervix was dilated five centimeters and no abnormalities were noted except a blood pressure of 170/100, some headache, and a trace of edema. Progress was rapid, and she was taken to the delivery room two and a half hours after admission for the administration of nitrous oxide inhalations during the second stage. At this time she experienced a convulsive seizure lasting ten minutes. Three minims of Pitocin were administered, apparently to hasten delivery of the infant, and 15 minutes later, another ten-minute convulsion occurred and the baby was delivered in good condition. Catheterized urine at delivery showed albumin, one plus.

The patient did not regain consciousness after the second convulsion. A total of nine convulsions were recorded in the 30 hours until death, the patient convulsing continuously during the final two and a half hours. The physician left the hospital two and a half hours after delivery and apparently was not notified that the convulsions were continuing until noon the next day. During this time, medication consisted of sodium phenobarbital, three grains intramuscularly. A spinal tap was performed with normal spinal fluid being found. No eye ground examination or paralyses were noted. Blood pressure remained about 170/80, dropped to 50/40 for a time, then returned to 130/100 until the terminal drop. Temperature rose to 110 degrees rectally and was brought down with ice packs. There were few chart entries, but medications during this time included Sodium Seconal, Sodium Phenobarbital, Sodium Amytal, Levophed, Cortex, Adrenalin, and an aspirin and starch enema. Urine output was scanty.

Consultation with a surgeon supported the physician's belief that he was dealing with a cerebral hemorrhage. He did not believe eclampsia was involved. An autopsy was not requested because it would have required bringing a pathologist from a nearby large city at considerable expense.

**COMMITTEE OPINION:** The committee disagreed with the attending physician, believing this to be fulminating eclampsia with subsequent cerebrovascular accident. The cardinal symptoms of toxemia were present when the patient was admitted, and it was felt that the final result might have been altered had the situation been recognized and vigorously treated. The committee considers this an unfortunate but excellent example of the rapidity with which toxemia may become established and of its potential seriousness regardless of its mild initial appearance.

**CLASSIFICATION:** Obstetric death; preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.



## PRESIDENT'S PAGE

DEAR DOCTOR:

In accordance with instructions from the House of Delegates, a new Medicare contract has been signed. During negotiations in Washington two subjects of principal interest emerged which we believe worthy of note.

The Congress will apparently curtail this program in the belief that care from private sources is more expensive than when rendered through government facilities. The officials with whom we visited appear to understand and are sympathetic with the philosophy of private practice.

However, the cost of the program has increased to the point where Congress is demanding economy of operation.

With the above fully understood, we still succeeded in obtaining approval in Kansas for what may be considered a contract without a fee schedule. They will pay every physician the figure he would normally charge a private patient in the \$4,500 income level. (The income for the average Medicare patient is considerably below this figure.)

There is a maximum above which, we agreed, the government will not pay except upon individual consideration, but this is so high that, we are convinced, it should present few problems. Thus, for all practical purposes, while there is a ceiling to protect the government, it may be considered that in Kansas, Medicare is now operating without a fee schedule.

This appears to be a victory. We contended that a controlled fee is an infringement upon free enterprise and a threat toward socialism. However, it carries with it the moral obligation of every physician who renders service under this program to charge only his normal fee and to effect all reasonable economy just as he would for any private patient.

Failure of our integrity will ultimately destroy the private practice of medicine. It is just that simple. It portends that much.

*Sincerely,*

A handwritten signature in dark ink, reading "Thomas P. Butcher, M.D." The signature is fluid and cursive, with a large, sweeping initial 'T'.

*President*

## EDITORIAL COMMENT

### Experience

We are prone to underestimate public intelligence and overestimate public experience. In that phrase, borrowed from a speech, may be uncovered some of the mysteries of public opinion. Here may be found an answer to some of the criticism against medicine and it may provide a solution.

The wrong public opinion isn't necessarily the result of a perverse attitude, and it is not because the public generally cannot comprehend the story. The public simply has not been told in a manner that is in keeping with its experience.

The average American child is quite sophisticated upon the television fare of the day. His concept of the code of justice in the old west, by way of example, might be quite beyond the comprehension of the equally intelligent youngster who lives in Copenhagen. It would require a considerable explanation of fundamentals before any productive discussion on that subject might take place.

Perhaps a better illustration is to discuss aerodynamics with a person who has never seen aircraft except as it flew over. Or, better yet, talk medicine to the housewife whose education has never included any subject in that field. Add to this the public confusion that arises from the normal variation of opinion among professional persons and the picture is complete.

Organized medicine says private enterprise is preferable to socialized care, but medicine fails to justify its stand. The public, lacking experience, explores for a better life, and finding an occasional complaint about the present system, opens its mind to anything that portends improvement.

When the profession opposes the extension of socialist practices into the field of health, the public understandably attributes such attitudes to a desire for preserving a system currently favorable to the profession. As the profession speaks louder, the public is inclined to believe this more firmly.

It appears reasonable, therefore, to analyze the public experience before launching upon a program of instruction. The success of such effort depends upon an understanding of this principle. Failures of the past might be explained in the same way.

How do you explain calculus to the man whose only need for mathematics is to count the cattle in his pasture? What do you say to the congenitally blind that will convey a meaning to color? These situations do not involve the problem of intelligence. They are questions of experience. They are not insurmountable obstacles. They are difficult but not impossible.

Medicine has a similar problem aggravated only by the fact that the lack of experience is better disguised and not so immediately recognized. The doctor who orders a pill to be taken three times daily is demanding participation by a layman in an action he fails to understand. He will follow in blind faith but upon the personal reflection of his own mind what constructive answer will this experience call forth?

So it is not a question of intelligence but a problem of experience that is involved, and in dealing with the public the problem is increasingly acute as the subject becomes more complex.

The solution is easy. There are two alternatives and perhaps a little of each is to be desired. The public might be educated to narrow the chasm between the physician and his patient. He will then understand what the doctor means and can comply with his requests intelligently. He will then also be in a better position to evaluate the social, economic, and the legal problems of health. But such instruction requires time and patience and a certain amount of genius for expression.

The other is to offer a service of such value and in such abundance that the public will not look for any other benefit. This too requires time and patience and a certain amount of genius, but it can be accomplished because it is not a question of intelligence but of experience that is involved. The one would be impossible; the other presents a challenge.

### Hospital Usage

There has recently been organized in Kansas a committee called the Joint Study Committee on Hospital and Medical Economics. Equally represented are the Kansas Medical Society, the Kansas Hospital Association, and the Blue Cross and Blue Shield boards of directors.

Although this group will explore many fields of hospital and medical economics, its first endeavor will be to study hospital usage in Kansas. The question of usage has been cause for concern for some time and was criticized recently by Francis R. Smith, insurance commissioner of Pennsylvania, who charged that patients in his state have been hospitalized unnecessarily and for periods of time in excess of need. The objective of this committee study is to determine whether this condition exists in Kansas.

The group recommended that this study be made in Kansas with all phases of the project subject to approval by the Relations Committee of the Kansas Medical Society. After the approval is obtained, each member of the Relations Committee will contact his district committee and appoint one doctor from each hospital in his area to take the lead in recommending

to his medical staff that an evaluation committee be established.

Hospital administrators will be asked to provide case records and make every arrangement possible to speed up the work of these evaluation committees so that the study can be completed at an early date. It is suggested that 30 to 50 cases be selected from some previous month's experience and that they be taken on a consecutive basis with a certain percentage of surgical, obstetrical, and medical cases.

An evaluation form will be prepared and will lend itself to statistical handling through I.B.M. machines. Among other items it will ask for the following information.

1. Was this admission as an in-patient justified in view of the condition of the patient? Could the patient as easily have been diagnosed or treated outside the hospital?

2. Was the length of stay reasonable in view of the condition of the patient? Evaluate the number of days in excess of need, if any.

3. Estimate the drugs, other treatments, and diagnostic studies in excess of need for this case, if any.

4. Does the patient have insurance? Was he a private care patient or a county welfare patient?

There will also be a space where the hospital will indicate the total case expense and estimate various items of cost of any excess of use, as determined by the medical committee.

Upon completion of the evaluation forms, the hospital administrator will be asked to assemble the forms and send them to the Kansas Hospital Association for state-wide summary. The committee hopes to have reviewed some 7,500 cases involving one-third of the Kansas physicians for presentation to the organizations involved.

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### Population Trends

Well over 70,000 more of this year's crop of babies will be knocking at the doors of the nation's high schools than would be doing so under the health conditions of only ten years ago. Some 700,000 more will reach the high schools than would under the conditions prevailing in 1900.

These estimates are given by Dr. Louis I. Dublin, noted health statistician and consultant on health and welfare for the Institute of Life Insurance, in analyzing the long-sustained progress in child health.

"Few realize how great the advances have been in recent years in safeguarding the lives of our children," Dr. Dublin said. "Today about 97 per cent of the more than 4,000,000 children born annually will be alive to celebrate their 15th birthdays.

"In 1900 only 79 per cent would have survived 15 years. And the gains continue to be made, demon-

strated by the one-third drop in child death rates in the last ten years for which figures are available.

At the same time that this illustrates advances in medicine and public health, it points up the problems of educators who must make provision for this increasing school population, the impact of the future increase in new family formation on our people and on our economy, according to the Institute consultant.

The largest single factor in the child-health gains has been the saving of infant lives in the first year, Dr. Dublin said. First-year deaths have always accounted for the greater part of the total deaths under age 15. In the early years of this century, half of all child deaths were in the first year; today nearly three-fourths are in the first year. The difference is that in 1900, every sixth infant died in the first year of life and today only one in 33 will die in the first year. Even ten years ago, the first-year death rate was half again as large as today.

Significant gains have been made in all the years of childhood up to the 15th year. First-year death rates have dropped over 80 per cent since 1900—36 per cent in the past ten years. Death rates among the 1-4 year-olds have dropped 94 per cent since 1900—39 per cent in the past ten years. Among 5-14 year-olds, the decline has been 87 per cent since 1900—38 per cent in ten years.

"As a result of the many advances in medicine and in public health," Dr. Dublin added, "our children not only survive to adulthood but enjoy increasingly good health. With greater co-operation of parents, teachers, physicians, and health officers, health impairments should become less important with the passage of time. We can congratulate ourselves on what has transpired in the last 50 years in the life and health of our children—indeed, in the last 10 years. It is largely through these gains that the average length of life at birth has increased by more than 20 years in the last half century. That is why the expectation of life today has reached the unprecedented figure of 70 years."

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### Films of A.M.A. Meeting

Filmed highlights of the A.M.A.'s 107th annual meeting—presented by the American Medical Association in cooperation with Merck, Sharp & Dohme—will be available after September 1 for showing to medical meetings. Entitled "San Francisco—1958," the 40-minute black and white films taken from kinescopes of five daily television programs may be secured either from the A.M.A. Film Library or Merck, Sharp & Dohme, Philadelphia 1, Pennsylvania. The films will feature interviews with speakers on the convention program.



## Uniform Reporting

One of the most important projects to which pediatricians in Kansas should give attention is a more uniform method of reporting results in the care of our newborns in hospitals. The fact that we have had some variation in reporting, particularly of the smaller infant of 1,000 grams and under, does not lend itself to accurate analyses of the results of newborn care.

If a uniform reporting method is adopted, it might necessitate reporting infants whose weights are as low as 500 grams, whether live or stillborn. Infants who expire outside the hospital should be charged against the hospital in which they were born, since this method might improve over-all care in many instances. Likewise a uniform listing of causes of death should be adopted in all hospitals of the state. The listing might follow Potter's classification, or a similar type which should be prepared by pediatricians or by the Kansas State Board of Health.

Another point which comes to mind is the necessity of adding to the report the time following birth at which death occurs. Certainly most of our efforts should be directed toward those who die within the first seven days after delivery, while those who expire in the period of 7 to 28 days of life should be studied in a different manner. In the latter group public health services can probably shed a great deal of light on the effects of home situations and economic factors pertaining to our death rates.

After the recent meeting on perinatal mortality, sponsored by the American Medical Association in Chicago, we should go along with recommendations formulated in this regard. In the meantime we should lend every effort to bring about uniform reporting throughout the state.

Prepared by the Child Welfare Committee of the Kansas Medical Society

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

For the first time since the idea was proposed more than seven years ago by President Truman and Oscar Ewing, legislation to tack a hospital and medical service program onto social security has received a thorough airing before a Congressional committee.

For 11 days the House Ways and Means Committee listened to testimony on this and other suggested changes in the law. The hospitalization plan—now identified as the Forand bill, for its sponsor, Rep. Aime J. Forand (D., R. I.)—was by far the most controversial issue. It came up repeatedly and each time was the signal for either sharp questions or praise from Mr. Forand, depending on what the particular witness thought about the bill.

At the end of the hearings, it appeared that a majority of the committee was not inclined to press for enactment of the Forand bill, although there remained the possibility of sentiment change. At this writing, the prospect is that a bill may be enacted to raise both social security and old-age assistance payments, with a \$600 increase in the amount of taxable salary or self-employment income to meet the extra OASI cost; public assistance payments come out of general revenue.

What did the Forand hearings produce?

For one thing, the proponents and opponents lined up in columns to be identified. The one important exception was the American Hospital Association. The A.H.A. specifically opposed the Forand bill "at this time," but left itself room for maneuvering.

The hospital witnesses, Ray Amberg, president-elect of the A.H.A., and Dr. James P. Dixon, chairman of its committee to study health needs of the aged, said their conclusion was that federal help of some sort was needed to finance the health care of the aged, and that the social security approach might be the ultimate decision.

However, for the present the hospital spokesmen proposed that the Ways and Means Committee set up a special advisory committee—health personnel and others—to bring together all information on the health problems of the aged, study the data, and make recommendations to the committee before January 1, 1960.

American Medical Association led the parade of opponents of the Forand bill, and its witnesses, Dr. Leonard Larson, a trustee, and Dr. Frank Krusen of

the Mayo Clinic, were subjected to close but not unfriendly questioning by Mr. Forand.

At one point Dr. Larson, the new chairman of the A.M.A. Board of Trustees, told Mr. Forand: "As chairman, I shall devote all my energies to solving this problem and other problems of medical care plans in general. This is my primary interest. I rise or fall on what happens in this field."

Lined up with the A.M.A. in opposing the Forand plan (in addition to the A.H.A.) are the American Dental Association, Blue Shield, the insurance industry in general, the U. S. Chamber of Commerce, and a number of other business and professional groups.

The AFL-CIO appears to be the backbone of forces working for the Forand bill. Labor's spokesmen, however, have the backing of several welfare organizations (plus the Illinois and Massachusetts welfare directors), the American Nurses Association, and the Physicians Forum, among others. The latter group also informed the committee that it favors compulsory social security coverage for physicians.

### Notes

A highlight of a testimonial luncheon for Surgeon General Burney was the first public appearance of Dr. Gunnar Gundersen as new A.M.A. president. Dr. Gundersen praised Dr. Burney as a public health officer and as a government official who did not lose contact with the private medical community. The affair was in recognition of Dr. Burney's election as president of the World Health Assembly.

For the time being, neither doctors nor hospitals will have the exclusive radio frequencies they are attempting to obtain. They were temporarily turned down by the Federal Communications Commission in one category, but will continue their efforts to obtain the frequencies for emergency as well as day-to-day communications.

It was late in the session before Congress indicated it would continue the Hill-Burton program; legislation virtually certain of enactment would extend the operation for three years, and authorize long-term loans to non-profit sponsors who for religious or other reasons do not want federal grants.

While avoiding "campaigning against smoking," the U. S. Public Health Service is going to pass on to the public all the information it has on the subject. Its most recent effort in this direction was release of a report, based on studies of 200,000 veterans, that showed a much higher death rate for "cigarette only" smokers.

## PHYSICIANS' ACTIVITIES

**Dr. David G. Shivel**, who recently completed general practice residency at the University of Kansas Medical Center, is now practicing in Great Bend in association with **Dr. M. F. Russell** and **Dr. Homer B. Russell**.

Newly elected to associate membership in the American Association for Thoracic Surgery is **Dr. A. M. Tocker**, Wichita.

**Dr. Eugene G. Petersen**, a graduate of the University of Kansas School of Medicine who recently completed his internship at Menorah Hospital, Kansas City, Missouri, began practice in Humboldt on July 1 in association with **Dr. Charles E. Vestle**. **Dr. R. G. Snodgrass**, who formerly practiced with Dr. Vestle, went to Kansas City to begin a four-year residency in neurosurgery at the University of Kansas Medical Center.

A Wichita physician, **Dr. Marvin H. Hird**, went to St. Louis last month to begin a three-year residency in obstetrics and gynecology.

**Dr. Edward E. Long**, Humboldt, spoke on "Hypnosis, the Art of Relaxation" at a meeting of the Allen County Medical Assistants' Society in Iola last month.

Plans to retire from practice have been announced by **Dr. James E. Wallen**, Ottawa. During his years of practice in Ottawa, since 1932, he estimates that he has delivered more than 1,300 babies.

**Dr. D. M. Diefendorf**, Waterville, accompanied by Mrs. Diefendorf, is spending two months in Europe. During his absence his practice is being cared for by his son, **Dr. D. C. Diefendorf**, who is on the staff of the Tulane University Medical School in New Orleans.

A tribute to **Dr. Harry L. Cobean**, Wellington physician who is practicing although he is 86 years old, was published in the *Wellington Daily News* last month.

**Dr. Glen E. Martin, Jr.**, who has been practicing in WaKeeney, is now in Wichita for a two-year residency in anesthesiology at St. Francis Hospital. He plans to practice in Wichita in association with **Dr. Ray Parmley** on completion of the course.

Two physicians who were 1957 graduates of the University of Kansas School of Medicine, **Dr. Car-**

## DEATH NOTICES

JACOB HARLOW ENNS, M.D.

**Dr. J. H. Enns**, 76, retired physician in Newton, died on June 26 after having been in poor health for 10 years. He was an honorary member of the Harvey County Medical Society. A graduate of the University of Chicago Medical School in 1911, Dr. Enns practiced in Inman until 1920, when he went to Vienna for post-graduate study in eye, ear, nose and throat work. On his return to this country in 1922 he began specialty practice in Newton, retiring in 1947. Two sons, **Dr. Eugene K. Enns** and **Dr. James H. Enns**, both of Newton, are among the survivors.

JOHN ALBERT PHILLIPSEN, M.D.

A physician who had practiced in Wellington for 30 years, **Dr. J. A. Phillipsen**, 86, died at a hospital there on June 28. He received his medical education at Northwestern Medical College, St. Joseph, graduating in 1894. For ten years during his practice in Wellington he served as coroner of Sumner County. He was an honorary member of the Tri-County Medical Society.

RALPH WALDO EMERSON, M.D.

**Dr. R. W. Emerson**, 65, Topeka physician for 35 years, died on July 1 after an illness of several months. After graduation from the University of Kansas School of Medicine in 1921, and internship there, he began practice in Topeka. He was especially interested in anesthesiology. He was an active member of the Shawnee County Medical Society, an organization he had served as president. He was a charter member of the Topeka Optimist Club and was active in the American Legion and the Civil Air Patrol.



**lyle M. Dunshee** and **Dr. Earl D. Merkel**, completed internships at Wesley Hospital, Wichita, on July 1 and began practice in Russell.

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**Dr. Charles R. Rombold**, Wichita, was recently elected to membership in the American Orthopedic Association.

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A Kansas City pediatrician, **Dr. Frederick A. Speer**, is the author of a book, *The Management of Childhood Asthma*, published last month by Charles C Thomas, Publisher, Springfield, Illinois.

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**Dr. Lafe L. Bresette** and **Dr. Clarence A. Gripkey** were recently named to the Kansas City-Wyandotte County Health Board.

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Among speakers at a Health Education Workshop held at Lawrence in June were **Dr. Thomas P. Butcher**, Emporia, president of the Kansas Medical Society, and **Dr. Edward D. Greenwood**, of the Menninger Foundation, Topeka.

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**Dr. Clement C. Vickery** recently joined the Department of Neuropsychiatry at the Hertzler Clinic, Halstead. A graduate of Harvard Medical School, Dr. Vickery served in the Navy before beginning residency training in Topeka.

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Physicians in Pratt County sponsored "Polio Dollar Day" in June and in July in cooperation with the National Foundation for Infantile Paralysis, and the Pratt Junior Chamber of Commerce. The purpose was to urge family immunization. Another such clinic will be held later.

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**Dr. M. E. Sturgis**, a 1957 graduate of the University of Kansas School of Medicine who served his internship at Research Hospital, Kansas City, Missouri, is now practicing in Concordia at the Gelvin-Haughey Clinic.

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Two county medical societies have established telephone exchange service recently, the Riley County Society with headquarters in Manhattan and the Ford County Society in Dodge City.

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**Dr. Paul J. Uhlig**, a graduate of the University of Kansas School of Medicine who has served his internship at Navy Hospital, Oceanside, California, was recently awarded a two-year pediatric residency fellowship by Wyeth Laboratories. He will receive a grant of \$4,800. He has elected to take his studies at the University of Kansas Medical Center.

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Members of the Labette County Medical Society were guests of the county bar association at a dinner meeting at Parsons one evening last month. Films on medical-legal subjects were shown.

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**Dr. W. P. Callahan, Jr.**, Wichita pathologist, is director of the Bethel Deaconess Hospital School of Medical Technology, Newton. The school, in connection with Bethel College, has been approved by the American Medical Association.

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**Dr. Glen E. Martin**, WaKeeney, has moved to Wichita to begin a residency at St. Francis Hospital. He resigned as Trego County coroner at the time of his move, and **Dr. R. B. Osborn**, WaKeeney, has been appointed to serve in that position.

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A trip to Europe in October is being planned by **Dr. and Mrs. Ira Morrison**, Atchison. Dr. Morrison will be a speaker at a meeting of the International College of Allergy in Paris.

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**Dr. D. Cramer Reed**, Wichita, recently was elected a member of the Wichita University Board of Regents. He was chosen by the Board of Education of the city.

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Members of the Bourbon County Medical Society entertained 50 physicians in a nine-county area at a dinner meeting at Fort Scott one evening last month. Speaker for the meeting was **Dr. Victor G. McDonald** of Kansas City.

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**Dr. Herman W. Hiesterman**, who has been studying surgery at St. Elizabeth's Hospital in Lincoln, Nebraska, during the past year, returned to practice in Quinter last month.

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Plans to practice in Kingman in association with **Dr. George E. Burket, Jr.**, and **Dr. Sam Zweifel**

have been announced by **Dr. James G. Ruggles**, a 1957 graduate of the University of Kansas School of Medicine who has just completed internship at General Hospital, Kansas City, Missouri.

**Dr. Robert C. Long**, who was graduated from the University of Kansas School of Medicine in 1953 and has since been receiving postgraduate training in surgery at St. Luke's Hospital in Kansas City and at the Cleveland Clinic Foundation, has opened an office in Norton.

The Trueheart Clinic, Sterling, announces that **Dr. Theil Bloom**, a 1957 graduate of the University of Kansas School of Medicine, is now a member of its staff. He served his internship at Wesley Hospital, Wichita.

**Dr. Karl A. Menninger**, Topeka, will be a speaker at the 15th annual meeting of the American Medical Writers' Association in Chicago next month.

The Samuel J. Crumbine award was made posthumously for the first time this year, honoring the late **Dr. Vernon M. Winkle**, who was director of local health services for the Kansas State Board of Health until his death on December 31, 1957.

**Dr. Franklin D. Murphy**, chancellor of the University of Kansas, returned last month from a trip to Europe which included a tour of Soviet Russia.

A feature story, "The Case for a National Relative Value Scale," written by **Dr. Barrett A. Nelson**, Manhattan, was published in the July 7 issue of *Medical Economics*.

Officers of the Pratt County Pharmaceutical Association were guests of the Pratt County Medical Society at its meeting on July 9. Common problems of increasing welfare costs were discussed.

**Dr. Robert E. Stowell**, head of the Department of Pathology and Oncology at the University of Kansas School of Medicine and president-elect of the International Academy of Pathology, was one of the speakers last month at the International Cancer Congress in London.

A physician who was discharged from the Air Force in June, **Dr. Robert A. Nash**, has begun practice in Olathe in association with **Dr. Edmer Beebe**. He is a graduate of the University of Kansas School of Medicine and served his internship at Tripler Army Hospital, Honolulu, prior to entering military service.

**Dr. Fowler B. Poling** and **Dr. Thomas H. Fender**, Wichita, announce that **Dr. Hugh D. Riordan** is now associated with them in neuropsychiatric practice.

### Pediatric Society Meeting

The Kansas Pediatric Society will hold its annual scientific session at the Broadview Hotel, Emporia, on Saturday, September 6.

The schedule for the day is as follows: 9:00, registration and coffee hour; 10:00, scientific session; 1:00, luncheon; 2:00, scientific session, ending at 5:00 and followed by a business meeting, committee reports, a social hour, and the annual society banquet at 7:00.

Scientific sessions will be entirely on pediatric cardiology. Dr. Sam McNamara, pediatric cardiologist of the Baylor University College of Medicine and Texas Medical Center at Houston, will talk on "Evaluation of Heart Murmurs in Children," "Selection of Patients for Open-Heart Surgery," and "Postoperative Results Following Open-Heart Surgery." Dr. Robert F. Ziegler, pediatric cardiologist at the Henry Ford Hospital in Detroit, will discuss "The Normal Electrocardiogram in Infancy and Childhood" and "Electrocardiographic Changes in Congenital and Acquired Heart Disease in Infants and Children."

The Kansas Pediatric Society invites any members of the Kansas Medical Society or physicians in surrounding states who are interested in the subjects to be discussed to attend the meeting. Advance registration may be made through Dr. T. C. Hurst, 405 KFH Building, Wichita.

Passenger cars were involved in over 78 per cent of all United States traffic fatalities in 1957 and in 86 per cent of traffic injuries.

Week-ends are the most dangerous time to be on United States highways. In 1957, more than 55 per cent of all fatalities occurred on Fridays, Saturdays, and Sundays.

# Clinicopathological Conference

## *Prolonged, Progressive Cough and Dyspnea Leading to Intractable Heart Failure*

### Case Presentation

This 37-year-old white woman was admitted to KUMC for the seventh time on March 16, 1957, and died on April 10, 1957.

She was first admitted on September 18, 1948, complaining of fatigue, weight loss, and cough for the past two years. She had been in good health until 1946 when she had a gradual onset of a dry, hacking, non-productive cough without fever or hemoptysis. During the next two years she had moderate anorexia, persistent fatigue, and a weight loss of 25 pounds. In 1947 she was hospitalized elsewhere, and at that time diagnostic procedures, including a bronchoscopy and sputum cultures, did not disclose any abnormalities. She gave no history of exposure to known toxins. She had smoked two packages of cigarettes daily for about ten years.

She had worked as a practical nurse for one year in a tuberculosis sanatorium when she was 18 years old. She had complained of "sinus trouble" for about ten years. She had had no operations.

The patient was a well developed but thin, chronically ill, white woman. Her blood pressure was 110/80; pulse rate, 80; the respiratory rate, 34. The breath sounds were diminished, and scattered, coarse inspiratory and expiratory rales were heard in all lung fields. The cardiac tones were normal, and there were no murmurs.

The red blood count was 4,500,000 with 12.5 gm. of hemoglobin. The white count was 7,200 with 63 per cent neutrophils, 8 per cent eosinophils, 20 per cent lymphocytes, and 9 per cent monocytes. The non-protein nitrogen was 30 mg. per cent; serum albumin, 4.08 gm. per cent; serum globulin, 2.32 gm. per cent. Tuberculin and histoplasmin skin tests were both positive.

She received streptomycin for one week but had a severe reaction to this drug. She was discharged on October 2, 1948.

During the next four years her symptoms of dyspnea, cough, and fatigue became more marked. She was hospitalized at the Mayo Clinic in 1950, and at that time pulmonary function studies revealed a vital

capacity of 1.84 liters. Skin tests for tuberculosis and histoplasmin were positive, but animal inoculations for tuberculosis and fungi proved negative. She had taken cortisone for several months and had received various antihistaminics and antibiotics. Her weight was 105 pounds.

She was in this hospital for the second time from April 27, 1952, to May 8, 1952, and her chief complaint at that time was chest pain and dyspnea.

Her third admission was from May 20, 1952, to June 7, 1952, when she complained of having had three episodes of recurrent spontaneous pneumothorax on the right side. The physical examination was essentially the same as on the preceding admission with the exception of changes consistent with right pneumothorax and accentuation of the second pulmonic heart sound.

At that time the red blood count was 4,500,000 with 13.4 gm. of hemoglobin. The non-protein nitrogen was 27 mg. per cent; serum albumin, 4.99 gm. per cent; and serum globulin, 2.51 gm. per cent.

During her fourth admission, July 17, 1952, to August 20, 1952, a partial right pleurectomy and a lung biopsy were done.

She was fairly well during 1953 and 1954 and was able to resume most of her usual activities, although cough and dyspnea were constant symptoms. Her principal medications at that time consisted of bronchodilators, cortisone, and broad spectrum antibiotics. The dyspnea increased markedly during the few months before her fifth hospitalization. In November, 1956, she first noted edema of the feet and ankles, orthopnea, and abdominal swelling associated with intermittent abdominal pain.

She was admitted for the fifth time on February 29, 1956, complaining of dyspnea and swelling of the feet and ankles. She was chronically ill and dyspneic at rest. Her blood pressure was 120/90, and her respiratory rate was 32. There were diminished excursions of the chest; fremitus was intact; there was hyperresonance at the bases. Breath sounds were diminished, and coarse, moist rales were heard in both bases. The second pulmonic sound was greater than the second aortic sound. No cardiac murmurs were heard. The liver was palpable 4 cm. below the right costal margin and was tender. There was bilateral two plus pitting edema below the knees.

The red blood count was 5,050,000 with 16.2 gm.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of medical students.



of hemoglobin; the hematocrit was 50 ml. The white count was 6,000 with a normal differential. The serum carbon dioxide was 22.7 mEq/L; sodium, 143 mEq; potassium, 4.5 mEq; chloride, 101 mEq.

She was digitalized and placed on a low salt diet. She lost 18 pounds and was discharged on March 15, 1956.

She was readmitted for the sixth time on March 25, 1956, complaining of dyspnea and a productive cough. At that time she was treated with prednisone, gitalin, antibiotics, bronchodilators, phlebotomy, and oxygen. The femoral oxygen saturation was 94.6 per cent; carbon dioxide, 32.3 mEq/L; serum sodium, 135 mEq; potassium, 6.0 mEq; chloride, 103 mEq. She slowly improved, and she was discharged on May 9, 1956.

After her discharge she was seen frequently in the outpatient department and was treated with multiple phlebotomies, gitalin, bronchodilators, prednisone, and antibiotics. She was on continuous oxygen while at home.

Her final admission was on March 16, 1957, because of inability to control the edema. Her symptoms had not changed remarkably except for increased dyspnea at rest and persistent peripheral edema and ascites. She continued to smoke an average of one package of cigarettes a day.

She appeared emaciated, and her skin was dark. Her blood pressure was 120/80, and her pulse rate was 110. She was not cyanotic. The antero-posterior diameter of her chest was increased; the accessory muscles of respiration were hypertrophied; and the rib cage was relatively fixed. The breath sounds were diminished throughout, and scattered rales were heard in all lung fields. The heart was enlarged; the second pulmonic sound was markedly accentuated, but no murmurs were heard. The liver was felt 4 cm. below the right costal margin. The abdomen was mildly distended, and there was 3 plus peripheral edema in the legs.

The serum carbon dioxide was 3.4 mEq; sodium, 143 mEq; potassium, 6.3 mEq; chloride, 101 mEq. The hemoglobin was 12.8 gm. with a hematocrit of 44 ml. The serum albumin was 4.82 gm. per cent; globulin, 1.98 gm. per cent; calcium, 5.0 mEq/L; phosphate, 2.7 mEq.

Her weight on admission was 82 pounds, and she gained eight pounds despite vigorous therapy to promote diuresis. The dyspnea and bronchospasm increased, and she died on April 10, 1957.

Dr. Mahlon Delp (moderator): Our patient had been under the observation of sundry staff members for over nine years, and, in addition to being seen here, she also had examinations at various other medical centers, including one at Chicago, the University of Pennsylvania, the University of Iowa, and the Mayo Clinic. Now, are there any questions?

Luis Bianchini (fourth year medical student):\* Was there any clubbing of the fingers?

Dr. Delp: There may have been some, but it certainly was not evident.

Eugene Bianchini (fourth year medical student): Did she ever have contact with fluorescent lamps or anything of that nature?

Dr. Delp: No.

Larry Ball (fourth year medical student): What were the maximum red cell factors before phlebotomy at any time?

Dr. Delp: The hemoglobin was 16 to 17 gm.

Loren Akers (fourth year medical student): Was the oxygen saturation taken while she was receiving oxygen during her fifth admission?

Dr. Delp: No, it was not.

LeRoy Androes (fourth year medical student): Will you describe her cough during the fifth and sixth admissions?

Dr. Robert Brown (resident in medicine): It was only during these two admissions that she had a productive cough, which amounted to only two to three tablespoonfuls a day.

Mr. Almers: What was the color of her skin?

Dr. Brown: It was diffusely pigmented.

Mr. Akers: Did it appear tanned?

Dr. Brown: Yes.

Mr. Bianchini: Did it look like melanosis?

Dr. Brown: Yes, it did.

John Benage (fourth year medical student): What was the venous pressure?

Dr. Brown: It was 125 mm.

Mr. Androes: Were the pulmonary functions observed?

Dr. Brown: The vital capacity in 1952 was 1.7 liters. This was repeated here at this hospital and was 1.66 liters.

Dr. Delp: The maximal breathing capacity in September, 1954, was 29.3 liters. The vital capacity was 1515 ml., and one second vital capacity was 900 ml.

Mr. Ackers: What was the result of the biopsy?

Dr. Delp: It showed an acute and chronic granulomatous pneumonitis, but no giant cells were seen.

Mr. Almer: Were fungi cultured?

Dr. Delp: No.

Mr. Androes: What was her temperature course?

Dr. Brown: There was a slight elevation in temperature during her first admission, but otherwise she was afebrile throughout all of the early stages of the disease. She had no fever at all during the last 28 days of her hospitalization.

\* Through a medical student at the time of this conference in December, 1957, he, like the others referred to as students, received the M.D. degree in June, 1958.

Mr. Ball: Was there any history of chronic exposure to roentgen radiation?

Dr. Delp: No, there was not.

Mr. Akers: What was the VDRL?

Dr. Delp: It was non-reactive.

Mr. Bianchini: What was the report of the complement fixation studies for histoplasma?

Dr. Delp: Negative.

Mr. Androes: Was she oliguric?

Dr. Brown: The urine output was adequate; it decreased, however, during her last few days.

Mr. Benage: Was there any indication of allergy?

Dr. Delp: No, there was not. Now, if there are no more questions, may we have the electrocardiograms, please?

Mr. Almer: The first electrocardiogram taken on April 29, 1952, shows a rate of about 65 and a normal sinus rhythm (Figure 1). There is a prominent S wave in lead I and a prominent R wave in lead III. The P and T waves are flat in lead I; P waves are low in leads V<sub>4</sub> and V<sub>5</sub>; T waves are low in leads V<sub>4</sub>, V<sub>5</sub>, and V<sub>6</sub>. I interpret this tracing as showing right axis deviation.

The next electrocardiogram, taken March 1, 1956, shows a rate of approximately 100. The most prominent feature of this tracing is the configuration of the P waves in leads II and III. There is an increase in the P waves throughout all of the chest leads. The S waves in lead I are deeper than in the first tracing, and the R waves are higher in lead III. The T waves are again absent in leads V<sub>4</sub>, V<sub>5</sub>, and V<sub>6</sub>, which is characteristic of right ventricular hypertrophy. The QRS complex is characteristic of systolic overloading. The T waves throughout would indicate myocardial ischemia. I believe this tracing is compatible with chronic pulmonary disease with right atrial hypertrophy.

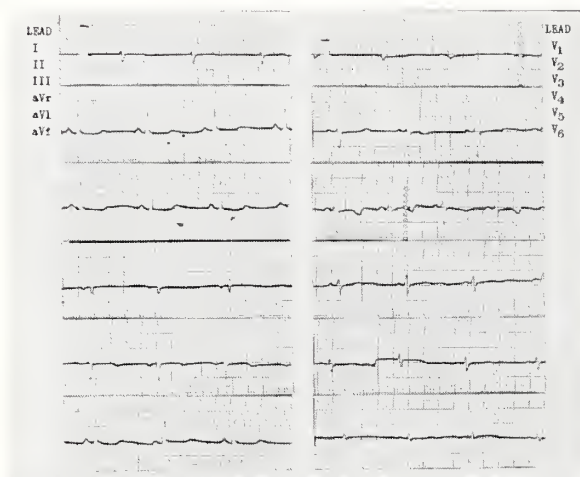


Figure 1. First electrocardiogram, April 29, 1952.

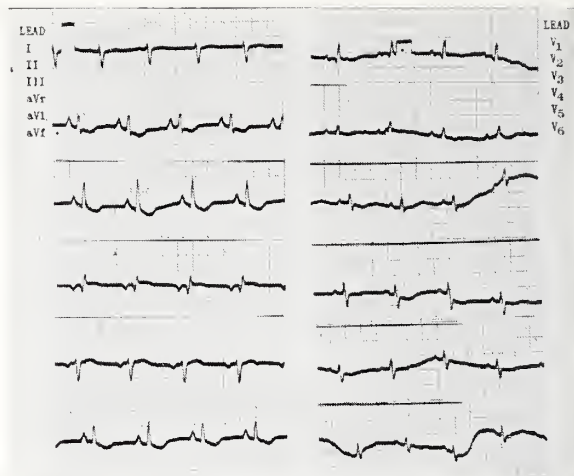


Figure 2. Last electrocardiogram, January 31, 1957.

The last tracing, taken on January 31, 1957, shows a rate of 110 and a normal sinus rhythm (Figure 2). The P waves are again prominent in leads II, III, and aVF. Large R waves in V<sub>1</sub> and V<sub>2</sub> are associated with delay in the onset of the intrinsicoid deflection. This tracing indicates right ventricular hypertrophy and systolic overloading. The QRS-T configuration in lead II may indicate digitalis effect.

Dr. Delp: Thank you. May we have the x-rays, please?

Mr. Ball: The first x-ray was taken at the state

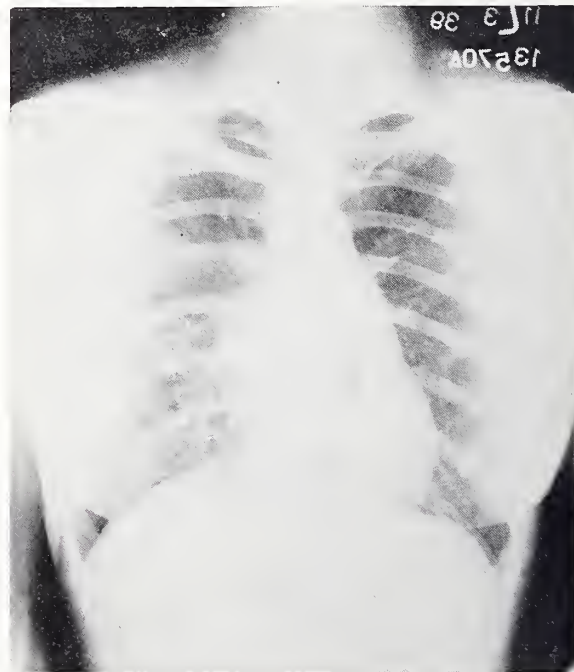


Figure 3. First chest x-ray taken at state sanatorium in November, 1939.

sanatorium, where she worked, in November 1939 before she apparently ever had any symptoms; it shows diffuse fibrosis in the hilar regions and in the lung fields (Figure 3). There are no bony abnormalities. There is a prominent pulmonary conus in this film. There is no enlargement of the heart. There is widening between the ribs.

The film taken in 1947 shows an increase in the fibrosis and widening between the ribs. There is blunting of the costophrenic angles, but they are clear. There is enlargement of the pulmonary conus.

A film taken in 1949 shows increased fibrosis. The Ghon complexes (which have been present in all of the films) are also seen here. There is marked enlargement of the pulmonary conus.

In a film taken in 1952 the fibrosis is shown as increasing and fanning out from the hilar regions. There is emphysema and more plaques on the diaphragm; there is a barrel-chest appearance and enlargement of the right atrium and pulmonary conus.

In March, 1956, the x-ray film showed more diffuse fibrosis and an increase in emphysema and pulmonary conus (Figure 4). The last film taken in January, 1957, shows the increased emphysema, and, again, there is enlargement of the atrial shadow and pulmonary outflow tract. On the lateral film the right ventricle appears to be in a forward position. The aorta does not appear atherosclerotic. There is diffuse fibrosis, and more emphysema is present in the bases.

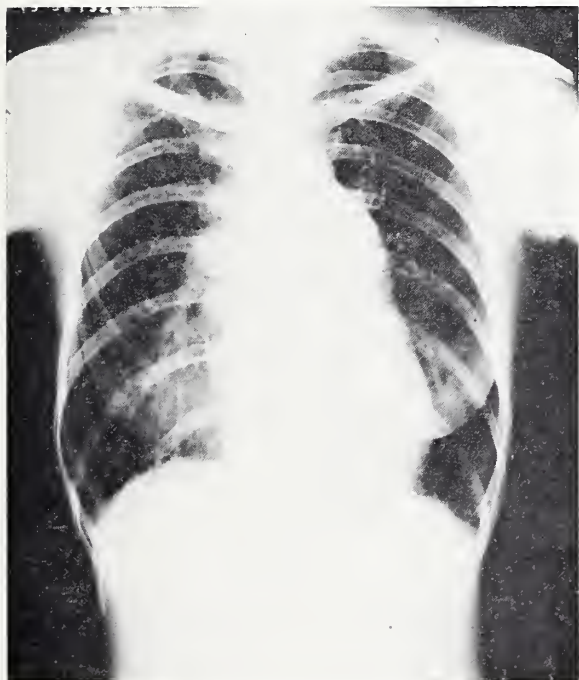


Figure 4. Chest x-ray taken in March, 1956.

These films are compatible with a diffuse infiltrating process that appeared before the development of symptoms and are compatible with sarcoid, Hamman-Rich syndrome, chronic radiation damage, pneumoconiosis, or tuberculosis.

Dr. Delp: Dr. Tice, do you have any comment?

Dr. Galen Tice (radiologist): The film taken in 1947 was our first contact with this patient. That film of the lung showed a nodular development which raised the question of a number of things: tuberculosis, smoker's disease, chronic heart failure, and many others. In regard to the question of radiation exposure, I do not know what her radiation exposure was before she came to this hospital. Forty-eight films were taken here.

Dr. Delp: In summary, our patient was a 37-year-old white woman who had been observed almost constantly over a ten-year period during which she had a progressive increase in cough and disability. On her last two admissions to this hospital she complained, for the first time, of edema of the feet and ankles and, lastly, there was enlargement of the abdomen with ascites. She had two episodes of spontaneous pneumothorax. At one time an exploratory thoracotomy was performed in an attempt to seal the pleura, visceral to parietal, and to close a fistulous opening. At that time a biopsy was also done. She had been given the usual bronchodilators and had had steroids continuously for almost four years. She was finally given digitalis. Mr. Benage, may we have your discussion, please?

### Differential Diagnosis

Mr. Benage: I would first like to quote Peabody who is an authority on pulmonary diseases. He states: "Of all the problems common to the field of chest diseases there is none more challenging than the differential diagnosis of diffuse pulmonary disease with seemingly endless diagnostic possibilities. Clinical findings tend to be obscure, and seldom are the usual laboratory tests of any help whatsoever."<sup>3</sup>

I shall base my differential diagnosis on diseases that cause pulmonary insufficiency and, ultimately, heart failure. First, I shall rule out pulmonary syphilis because it is a relatively rare entity, and there was no history of a primary lesion, no physical findings of secondary or tertiary disease, and a negative serology. The pneumoconioses can be ruled out because there was no history of exposure. I dismiss actinomycoses because there is involvement of the face, jaw, and neck in at least 60 per cent of the cases, but these were absent in our patient. Also, there was no demonstration of sulfur granules, no sinus formation, and no physical findings suggesting consolidation.



There were no manifestations of blastomycosis, coccidioidomycosis, histoplasmosis, or cryptococcosis. Collagen diseases such as lupus erythematosus and periarteritis nodosa can be dismissed as likely possibilities because of failure to demonstrate involvement of multiple organ systems over a period of 11 years. The classic example of malignant metastatic tumors of the lung would be lymphogenic carcinomatosis of the lung with primary carcinoma of the breast, but our patient had no primary lesion during these 11 years. Radiation fibrosis has already been mentioned, but there was no exposure until she was 20 years of age.

Multiple pulmonary emboli may be a cause of pulmonary insufficiency, but there were no physical findings to support this diagnosis. I have little doubt, however, that our patient did have some pulmonary emboli during the course of her illness, as cardiac decompensation and peripheral stasis and stagnation provided excellent circumstances for the development of the thromboses of the leg and pelvic veins with subsequent emboli from this source.

Factors against the diagnosis of granulomatosis and allergic angiitis are the absence of manifestations of general arteritis or history of terminal renal insufficiency.

I believe that she did have some degree of bronchiectasis, but I shall dismiss this as a primary disease in the absence of large amounts of sputum.

Tuberculosis should be considered as a possible diagnosis, but there was no history of night sweats or prolonged fever, no acid fast bacilli, and no positive sputum cultures. Sarcoidosis should also be considered, but factors against this diagnosis are the absence of fever, skin lesions, bone lesions, hypercalcemia, or anergy to tuberculin and histoplasmin skin tests over 11 years.

The Hamman-Rich syndrome or diffuse fibrosing interstitial pneumonitis may be acute or chronic; the etiology is unknown. Patients usually complain of cough, dyspnea, and cyanosis. About 50 per cent of these patients develop right ventricular failure, resulting in death. The x-rays show diffuse nodular infiltrating lesions, but I shall rule out this disease because of her prolonged course.

There are four types of emphysema: compensatory, senile, obstructive and idiopathic, hypertrophic. I believe that, as a result of smoking, our patient had sinusitis with the development of chronic bronchitis and idiopathic emphysema. Asthma may also be a factor. The classic picture of emphysema is one of chronicity: the patient develops asthma and chronic sinusitis, and often has been a smoker for many years. Pulmonary insufficiency slowly develops, and there is a decreased vital capacity. Classic physical findings

develop such as increased antero-posterior diameter, rapid respiration, decreased excursions, fixed chest cage, hypertrophy of accessory respiratory muscles, hyperresonance of the chest with decreased breath sounds, and increased second pulmonic sound with pulmonary hypertension. Finally, there is right ventricular failure with the usual complications of spontaneous pneumothorax and respiratory acidosis. The chest x-ray characteristically shows a flattened diaphragm, increased radiolucency, and increased vascular markings.

I believe that when our patient was a child she had a mild asthmatic allergy and a sinus infection. At 16 years of age she began to smoke two packages of cigarettes a day, and a chronic bronchitis developed which, together with bronchial edema and spasm, produced emphysema. Dyspnea, cough, and weight loss were progressive symptoms. The spontaneous pneumothorax was the direct result of ruptured emphysematous blebs. To compensate for the hypoxia, a secondary polycythemia developed. Because of the diminished capillary bed, pulmonary hypertension developed, and with the myocardial hypoxia and increased cardiac work load, she eventually had right heart failure. The emphysema was consistently aggravated by smoking which caused marked bronchial spasm. I believe that while she was in heart failure she had several pulmonary emboli from the thrombi in the leg veins which caused increased pulmonary insufficiency and right heart failure. I believe that terminally she developed a pulmonary embolus and ventricular fibrillation.

My final diagnosis is idiopathic emphysema, secondary chronic bronchitis, and subsequent right heart failure resulting in death.

### Clinical Discussion

Dr. Delp: Thank you. Mr. Bianchini, what is your diagnosis?

Mr. Bianchini: Diffuse interstitial fibrosis of the Hamman-Rich type.

Dr. Delp: Mr. Androes?

Mr. Androes: Sarcoidosis.

Dr. Delp: Mr. Acker?

Mr. Acker: Hamman-Rich syndrome.

Dr. Delp: Mr. Akers?

Mr. Akers: Interstitial fibrosis, probably smoker's emphysema.

Dr. Delp: Mr. Almer?

Mr. Almer: Smoker's emphysema.

Dr. Delp: Mr. Ball?

Mr. Ball: Hamman-Rich syndrome.

Dr. Delp: Mr. Bianchini, what does the term "compliance" mean?

Mr. Bianchini: The term "compliance" means the

expansion of the lungs because of the recoil mechanism.

Dr. Delp: Mr. Ball?

Mr. Ball: It refers to the elasticity of the lungs.

Dr. Delp: Mr. Benage?

Mr. Benage: The lungs have a certain recoil ability, and if this ability from inspiration decreases then compliance is low.

Dr. Delp: Mr. Bianchini, was this primarily a failure in circulatory irrigation through the lung, or do you believe it was a failure in ventilation?

Mr. Bianchini: It probably was failure of ventilation in the early stages of the disease.

Dr. Delp: Mr. Androes?

Mr. Androes: A shunting mechanism sometimes develops between the arteries and veins and, together with an inadequate mixing of gases, may produce chronic hypoxia.

Dr. Delp: Mr. Akers?

Mr. Akers: Diffusion of oxygen in the alveolar capillaries was impeded by the fibrosis.

Dr. Delp: Mr. Almer?

Mr. Almer: I believe that after the shunting mechanism developed the blood was shunted through by the left azygous veins.

Dr. Delp: Mr. Ball, do you have any comment?

Mr. Ball: I believe it was diffusion because our patient was able to hyperventilate alveoli of the lungs and, initially, to keep the carbon dioxide low, but as the diffusion decreased the carbon dioxide was elevated.

Dr. Delp: Mr. Bianchini, how do you explain the tachypnea?

Mr. Bianchini: The lung capacity had been tremendously reduced and, in order to get sufficient oxygen, she had to breathe much faster.

Dr. Delp: Mr. Acker, do you agree with that?

Mr. Acker: Yes, I do.

Mr. Benage: I believe the increased rate was due to stimulation by the elevation of the carbon dioxide.

Dr. Delp: Mr. Bianchini, how do you explain the generalized melanosis of her skin?

Mr. Bianchini: Persons with chronic diseases usually have melanosis of the skin.

Dr. Delp: Dr. FitzPatrick, do you have any comment?

Dr. Martin FitzPatrick (internist): The outstanding feature of this case is that the patient, as a young girl, was free of any significant pulmonary disease, but during the last 11 years of her life she became afflicted with a disease that was relentlessly progressive resulting in her death at the age of 37 years. This tends to rule out the more common forms of severe pulmonary disease found in women. We know that she was infected with the tubercle bacilli; we know

that she experienced infection with *Histoplasma capsulatum* because of the positive skin test. We also know that about five years before her death she began to have rupture of bullae in her right upper lung field. She probably had localized areas of emphysema.

An outstanding feature is her difference from the chronic pulmonary patient who usually shows a more classical emphysema than she did. I believe that Dr. Delp has been emphasizing the fact that she was not cyanotic, that resting arterial saturation in the mid-90's is good, and suggesting that this was not the usual kind of emphysema so often seen in the elderly male. There, due to differences in distribution of air and in blood supply to the alveoli, there are many cases of a shunting mechanism. Many of them are hypercapneic; many are more hypoxic. I believe that our patient's disease was degeneration of the lungs with fibrous replacement of her lungs with an interstitial alveolar and probably a vascular sclerosis. This probably does not represent a so-called type of degenerative destructive emphysema often seen primarily as a disease of the elderly. I believe that this is a disease of unknown etiology, and that it is one that we will see more and more in the future.

Dr. Delp: Dr. Bolinger, do you have any information that might fit in with a diagnosis of sarcoidosis?

Dr. Robert E. Bolinger (internist): As pointed out by Mr. Benage, there was no hypercalcemia or hyperglobulinemia with which to make the diagnosis of sarcoidosis. It is noteworthy that those two features cannot be too easily discarded because our patient probably had been receiving corticoids for some time. It is known that in sarcoidosis the hypercalcemia is probably a result of hyperabsorption of calcium by the intestine, probably related to a hypersensitivity to vitamin D. For that reason, cortisone is rather specific in lowering the plasma calcium elevation which may occur in these patients because it blocks the absorption of calcium. I believe we should not discard the normal calcium values, but, by the same token, we should not discard the lack of hyperglobulinemia.

Dr. Delp: Dr. Schlesinger, do you have any comments about the cardiovascular signs or symptoms the patient later manifested?

Dr. Paul Schlesinger (internist, University of Brazil School of Medicine): I believe our patient probably had an obstructive pulmonary vascular disease, but I do not believe she had the hypoxic type of chronic cor pulmonale. She had some degree of hypoxia, but her main problem was diffuse pulmonary vascular obstruction on the basis of some obscure type of pulmonary fibrosis which primarily affected the pulmonary vascular bed. She developed progressive right ventricular hypertrophy, chronic cor pulmonale, and right heart failure.



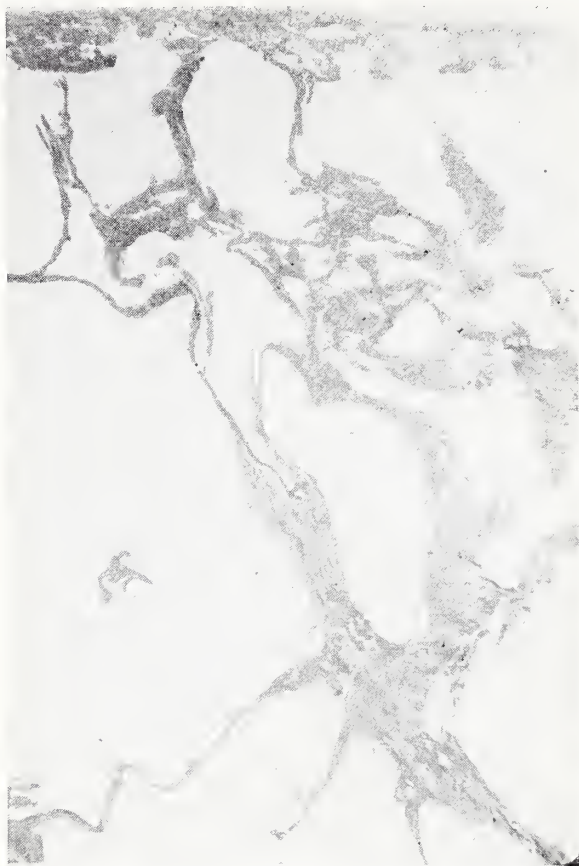


Figure 5. Emphysematous lung showing cystically dilated air spaces and fibrous thickening. Hematoxylin and eosin X45.

An interesting aspect of this case is the marked degree of dyspnea which obviously was not on the basis of heart failure. Her respiratory symptoms during the last stages were not related to heart failure because she had no left heart failure. She may have developed a pulmonary complication or infection which caused dyspnea and respiratory difficulty. Her cardiac signs and symptoms were essentially those of right heart involvement, right ventricular hypertrophy, and right heart failure. I agree that the disease was an obscure type of pulmonary fibrosis.

Dr. Delp: Thank you. Dr. Wilson, you observed this patient for nearly ten years. What was your initial diagnosis?

Dr. Sloan Wilson (hematologist): My first diagnosis was sarcoidosis with possible fungus infection.

Dr. Delp: Mr. Benage, I am glad that you emphasized the cigarettes; they impressed me, too. May we have the pathology report now, please?

#### Pathological Report

Dr. O. Dale Smith (pathologist): The lungs together weighed 940 grams. They were expanded, and

the surfaces were mottled with anthracotic pigment. Firm adhesions of visceral and parietal pleura were present, particularly over the right upper and middle lobes and over the inferior surface of the right lower lobe binding it to the diaphragm. The immediately arresting changes in the lungs were myriads of emphysematous cysts ranging in diameter from 4 to 12 mm. and extensive fibrosis of the intervening tissue. These were diffuse changes affecting the entire parenchyma of both lungs. The microscopic sections demonstrated ruptured alveolar walls producing the cystic chambers lined by cuboidal cells (Figure 5). The individual alveolar septae were increased to several times their normal thickness (Figure 6), and there were broad sheets of collagen in many areas. The bronchioles were ectatic, and many showed significant hyperplasia of their circular muscular coat. In some fields we found irregular masses of smooth muscle fibers with no associated bronchus or bronchiole, the bronchi having been destroyed and only the muscle remaining to indicate their previous existence.

The major pulmonary arteries revealed typical atheromatous plaques having within the intima fibrous

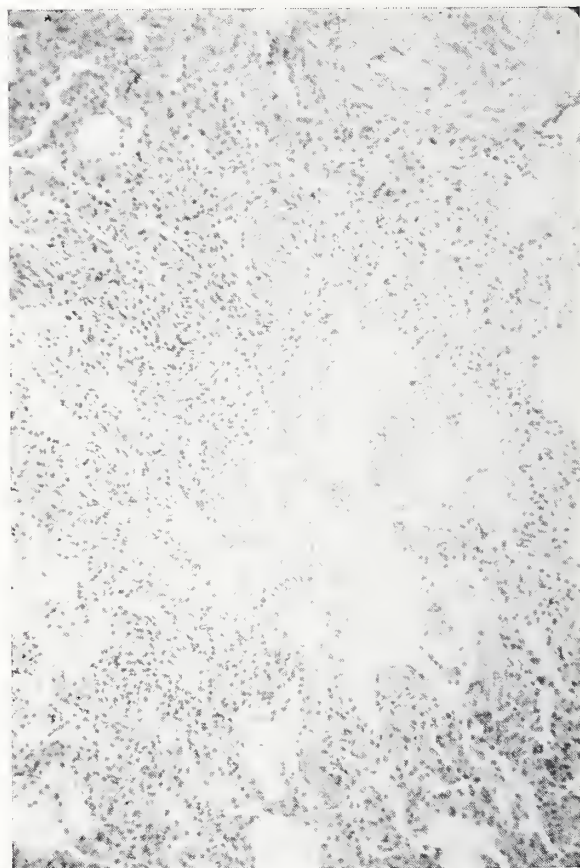


Figure 6. Lung. Marked fibrous thickening of alveolar walls. Hematoxylin and eosin X175.



tissue proliferations which contained foamy macrophages and fusiform clefts that stained deeply with lipid stains such as Oil Red O. The smaller arteries and arterioles had thickened walls, and elastic and connective tissue stains showed this thickening to be due to medial hypertrophy and fibrous intimal proliferation such that the lumens were significantly narrowed (Figure 7); these latter alterations were the result of pulmonary hypertension.

Stains for iron revealed hemosiderin-laden macrophages; however, the lack of hemosiderin in the vessels or in the alveolar walls militated against consideration of idiopathic pulmonary hemosiderosis.

The heart weighed 400 grams, the increased weight being the result of hypertrophy of the right ventricle, the myocardium of which measured 12 mm. in thickness. The left ventricle was dwarfed in comparison with the right. The tricuspid valve was dilated and measured 125 mm., and the right atrium had hypertrophied.

The liver weighed 900 grams. The lobular architecture was accentuated, and there were two unencap-

sulated but fairly well defined foci which, when examined microscopically, were consistent with regeneration nodules. The central lobular areas showed congestion and fibrosis with concomitant parenchymal atrophy. These changes suggested early cardiac fibrosis with incipient cardiac cirrhosis.

A lung biopsy performed in 1952 showed a marked and diffuse proliferation of histiocytes and fibroblasts with smaller numbers of lymphocytes and neutrophils. These changes were of a nonspecific nature and were in contradistinction to the striking lack of active inflammatory change in the lungs as seen in the post-mortem examination. The biopsy gave an indication that the primary disease had an inflammatory process of undetermined etiology as its basis. That process had caused irregular obstructive phenomena in bronchioles leading to parenchymal emphysema and fibrosis and to bronchiectasis. The cardiac changes were those of cor pulmonale and were secondary to increased resistance in the pulmonary vasculature. Sarcoidosis was considered as a possible factor in the pathogenesis of our patient's disease. It should be noted that we found, at the hilum of the lung, a lymph node containing an old healed fibrocalcific nodule for which special stains failed to reveal an etiology. The biopsy in 1952, in contrast, showed a diffuse granulomatous lesion rather than a focal lesion and was not, in my experience, compatible with sarcoidosis.

Dr. Delp: Are there any questions for Dr. Smith?

Dr. Thomas J. Rankin (internist): I would like to know whether this was believed to be an acquired illness or whether there was a lung tissue sensitivity from birth?

Dr. Smith: I was unable to demonstrate that it was other than acquired. I do not know whether there is a familial or genetically induced predisposition to this apparently acquired disease.

Dr. Delp: Dr. FitzPatrick?

Dr. FitzPatrick: I do not believe we will know until test systems are set up to answer these questions. It is of interest that our patient had more or less lived through her life cycle, particularly the last 11 years, during the time when there was greatly increasing knowledge of the physiology and pathology of pulmonary disease. She represents a therapeutic failure, but we can say nothing definitely about the pathogenesis.

Dr. Rankin: I was attempting to emphasize further our diagnostic failure as well.

Dr. Delp: Dr. Bolinger, do you believe the steroid administration could have altered the characteristic findings of sarcoidosis?

Dr. Bolinger: I believe that it is quite possible.

Dr. Delp: Dr. Smith, what is your opinion?

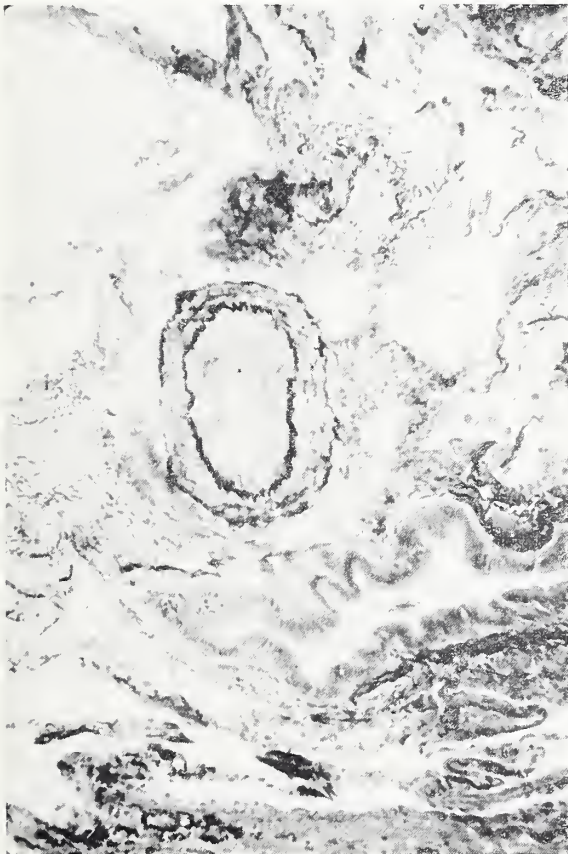


Figure 7. Lung. Artery with intimal hyperplasia associated with ectatic bronchiole and emphysematous parenchyma. Elastic stain X175.

Dr. Smith: I am not sure how long our patient had had steroids at the time of her biopsy; it was a diffuse lesion and did not remind me of sarcoid, although I do not know what the spectrum of changes would be which might be induced by steroids.

Dr. Sloan Wilson: What was the appearance of the adrenal glands?

Dr. Smith: The adrenal glands were moderately reduced in size and contained a good complement of lipids. These changes were consistent with moderate involution incident to steroid therapy.

Dr. Delp: Are there any other comments?

Mr. Bianchini: I would like to ask Dr. Smith how this lesion differs from that described by Hamman and Rich.

Dr. Smith: Actually Hamman and Rich were describing the end-stage of idiopathic pulmonary fibrosis and postulating an inflammatory process as an etiological factor. Certainly we have, in this case, a pulmonary fibrosis for which we have not demonstrated an etiology, and in this respect it agrees with Hamman and Rich.

Dr. Delp: Are there any other questions?

Mr. Akers: Did she have a normal pancreas?

Dr. Smith: Yes, she did.

## Summary

Dr. Delp: This case report shows so clearly the irrevocable progress that fibrosing processes of the lung can take. An etiological agent could not be determined at any time during the ten years of observation, but likely no one agent was responsible. The terminal findings are quite characteristic of the syndrome described by Hamman and Rich. It is unfortunate that the additional irritation caused by smoking was not eliminated early. The final picture was that of complete cardiopulmonary failure with no unique characteristics.

## Pathological Anatomical Diagnosis

### Primary

Diffuse pulmonary fibrosis with cystic emphysema, bronchiolectasis, and bronchiectasis.

Pulmonary arteriosclerosis and arteriosclerosis.

Cardiac hypertrophy and dilatation affecting the right ventricle and atrium.

## References

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## Clinical Society Meeting in Kansas City

The 1958 fall clinical conference of the Kansas City Southwest Clinical Society will be held September 22 through 25 at the Municipal Auditorium, Kansas City, Missouri.

Fifteen guest speakers (see advertisement in center section) will participate in lectures, and there will be panel discussions, closed circuit color television, post-graduate breakfast seminars, round table luncheon quiz sessions, and specialized discussions. The breakfast seminars and specialized luncheon discussions will be limited in enrollment and early reservations are advised.

The premiere telecast of the special electronic equipment developed by Captain Norman Lee Barr, director of Aviation Medicine Research, will be presented on Tuesday morning, September 23. Physiological data will be transmitted from patients at the Bethesda Naval Hospital directly to the Municipal Auditorium. In addition, the vital data from a pilot flying a plane over Washington, D. C., will be beamed to the Bethesda Naval Hospital and relayed to Kansas City. This program will be a glimpse into the future when the facilities of the best diagnostic centers in the country will be available in every doctor's office.

All physicians who are members of their county medical societies are invited to attend. Programs may be obtained from the society, 3036 Gillham Road, Kansas City 8, Missouri.

## Auxiliary in Kansas Wins

The Woman's Auxiliary to the Kansas Medical Society placed first among states of its size in the annual contest conducted by the national auxiliary for the sale of subscriptions to *Today's Health*, according to announcement made at the A.M.A. and Auxiliary meetings in San Francisco last month. Mrs. H. Lee Barry, Wichita, was chairman of the committee working on sales. Kansas competes with other states having Auxiliary memberships of between 1,001 and 2,000.

First prize for counties having memberships of less than 30 was won by a Kansas group, the Auxiliary in the Flint Hills, under the chairmanship of Mrs. Robert L. Obourn, Eureka. The Auxiliary in Sedgwick County, competing among groups of more than 150 members, placed first also. Mrs. Robert E. Hull, Wichita, served as chairman there.



# Medicolegal Problems

## *Importance of Obtaining Consent to Operations*

KIRKE W. DALE, *Arkansas City*

The medicolegal aspects of the practice of medicine are daily becoming of greater importance, and those engaged in the practice of medicine should protect themselves to the greatest possible extent.

Many physicians and hospitals do not follow the practice of requiring the signing of appropriate medicolegal forms in situations where experience has shown that the signing of such forms might have prevented a lawsuit, or might have been the difference between victory and defeat in the event of litigation. In other instances, inadequate medicolegal forms are in daily use.

The so-called "blanket" consent forms, which purport to give the physician unlimited authority and discretion without specifying the particular operation contemplated, are used extensively. In the absence of a consent form that describes within reasonable latitude the nature of the operation or treatment to be performed, a jury can very easily choose to believe the "forgetful" patient whose recollection regarding the treatment he authorized has been dimmed by time or circumstances.

Up-to-date medicolegal forms, in my opinion, should be executed and kept in the physician's office and files, whenever reasonably possible.

### **Consent to Operations**

The following pertains to surgical operations, but the principles of law are equally applicable to other examinations, procedures, or treatments in which the physician engages.

Authority is necessary before a physician may legally examine or treat a patient. A physician who operates upon a patient without having authority to do so, commits an assault and battery for which he may be prosecuted criminally or held civilly liable in damages. If the patient upon whom the unauthorized operation was performed is unable to prove that any actual damage occurred or was caused by the operation, he will usually be able to recover only nominal damages. It is no defense that the unauthorized operation was performed with due skill and care inasmuch as negligence is not an element of this cause of action. Authority for the performance of an operation may

arise out of a legal duty or out of the consent of the patient or some one authorized to act in his behalf.

For instance, some states provide, by statute, for eugenic sterilization of feeble-minded persons and habitual criminals. If the law under which the operation has been authorized is a valid, constitutional law, and if the procedure leading up to the order for sterilization has been in conformity with that law, and if the operation is performed in accordance with the law and without negligence, the physician authorized to perform the operation incurs no personal liability in performing it, even over the objection of the patient. Similarly statutory authority protects physicians in charge of state mental institutions, prison physicians, and health officers charged with the enforcement of vaccination and quarantine laws. The conduct of all such officers is subject to review by the courts. If they act beyond the scope of their authority, or if they act in an unlawful manner, they are liable for the payment of damages and may be subject to criminal prosecution.

The authority to operate usually arises from the valid consent of the patient or someone legally authorized to act in his behalf. A valid consent, however, is no defense in an action for professional negligence. The consent given may be either express or implied and, if express, it may be either written or oral. The consent given must be an informed consent with an understanding of what is to be done and of the risks involved. The procedure involved and its attendant risks should be explained to the patient in understandable non-technical terms. The consent given may be invalid (a) because the act consented to is unlawful, or contrary to public policy, or (b) because the consent was given by one who had no legal authority to do so, or (c) because it was obtained by misrepresentation or fraud.

A valid consent to an operation must be the rational act of a qualified mind. The consent of the patient is sufficient if he (a) has attained his majority and (b) is, at the time of giving consent, competent to understand the nature and purpose of the operation proposed and the risks involved. The consent of the husband to an operation on his wife is not necessary, and the consent of the wife is usually sufficient authority. Nevertheless, it is advisable to have the joint consent of both spouses whenever practicable. This is

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The author of this article has been serving as legal counsel to the Kansas Medical Society for many years.



particularly desirable if the operation involves danger to life, may destroy or limit sex functions, or may result in the death of an unborn child. A person who has attained his majority and is of sound mind is presumptively qualified to give or withhold consent. The presumption may be rebutted, however, by evidence showing that when the consent was given the person was drunk, or under the influence of drugs, or delirious, or comatose, or otherwise incapable to exercising rational judgment. Under such circumstances the law will infer consent if the patient's life was at stake and there was no one present to give consent in his behalf. The fact that a patient is being treated free or at the expense of some one else does not do away with the necessity for obtaining his consent.

The physician, in agreeing to perform the operation, does not, in the absence of a special contract, guarantee particular results or to cure. The physician warrants only that he possesses the degree of knowledge and skill ordinarily possessed by a member of the profession in good standing in the community and that he will use that knowledge and skill in the performance of the operation. However, a physician may expressly agree to accomplish a particular result or effect a cure. Admittedly, this is an unsound practice. If the physician enters into such a contract and fails to bring about the result or to effect the cure, he is liable for breach of contract even though he used the highest possible professional skill.

Consent to a criminal abortion is void because such an operation is unlawful. Consent to an experimental operation that will greatly endanger the life of the patient and which is not intended to relieve or cure his illness or injury, but solely to advance the science and art of medicine, is usually regarded as contrary to public policy and therefore void. Treatment involving an element of experimentation may properly be administered only with the full knowledge and consent of the patient or those legally responsible for him, and then only if the treatment does not vary too radically from accepted methods of medical practice.

An operation for sexual sterilization is generally regarded as contrary to public policy when such sterilization is not necessary for the cure or prevention of disease or anti-social conduct. Consent to a sterilizing operation is therefore probably void unless the operation is intended to cure or prevent disease or anti-social conduct or prevent a pregnancy that would endanger life.

Purported authority for an operation obtained by misrepresentation or fraud on the part of a physician is not valid authority and affords no protection. To represent to a patient that an operation is necessary to save life or to preserve health when that is not the

case, or that it will give greater relief than there is any reasonable prospect of obtaining, is to perpetrate a fraud on the patient which vitiates his consent. Tactful honesty and frankness on the part of the physician are most essential.

Operations on minors, at least on those who have not attained years of discretion, may be lawfully authorized by the parents or by a guardian if there is no parent. If the minor has parents, consent must be obtained from them even though the minor is temporarily in the care of some other person. Where parents are legally separated or divorced, consent on behalf of the child should be obtained from the parent who has legal custody. It is particularly important that consent be obtained when the procedure to which the child is to be subjected is for the benefit of some other person, such as when he is serving as a blood or skin donor.

It is not clear whether a valid consent can be given by a child who has not attained his majority, although he is of sound mind and has attained the age of discretion. The fact that a child is legally qualified to make a contract for medical services as one of the necessities of life may be construed as authorizing him to consent to an operation, at least when the cost thereof is to be paid by him from his own funds. There may be a conflict, however, between the authority of the parent and the authority of the child, if a child is under treatment at the expense of his parents. In such cases, it is best that the physician refrain from action until the question of authority is settled, unless immediate medical attention is necessary to preserve the health or life of the child.

A male or female attains his or her majority in Kansas when reaching the age of 21 but, if married, they reach the age of majority at 18.

Consent is sometimes withheld by the parents on the ground that such treatment would be contrary to their religious beliefs or because of ignorance. Where the life or health of the child is in jeopardy, it is suggested that the physician or those interested in the child's welfare report the case to the county attorney or to any available child welfare agency, with a view of having them initiate immediate legal action. The Kansas statutes provide that, when the health or condition of a dependent and neglected child shall require it, the juvenile court may cause the child to be placed in a public or private hospital under the care of a competent physician.

Where the patient is of unsound mind and incompetent to understand the nature, the purpose, and the risks incident to a proposed operation, authority must come (a) if he is a minor, from one or both of his parents, unless a guardian has been appointed for him by the court, in which case it must come from the guardian; or (b) if he has attained his majority, from

his spouse or legally appointed guardian. An adult, not under guardianship, who is partially incompetent but sufficiently capable mentally of understanding his need for an operation and the possible consequences may be considered capable of assenting, especially in view of the fact that he is, despite his mental condition, considered in law to be capable of entering into a contract for medical services as a necessity of life. It is, nevertheless, desirable under such circumstances that a relative, or if there is none, some person who has demonstrated a genuine interest in his care and welfare, approve or join in executing the consent.

When an immediate operation is imperative and the patient is unable to consent rationally to the proposed operation, and when delay incident to the obtaining of the consent of some one legally authorized to consent on behalf of the patient involves serious risk to the patient, an operation may be performed on the legal theory of implied consent. The law implies that the patient would, if competent, consent to whatever may be necessary in his own interests. When a surgeon operates under such circumstances he should be prepared to show (a) that an immediate operation was necessary; (b) that a lawful express consent could not be obtained from the patient or from any person authorized to act for him, without endangering the health or life of the patient; and (c) that the operation performed was necessary for the patient's welfare.

Ordinarily, an operation must be performed strictly within the limits of the authority that has been given. The physician may not perform an operation different from that for which consent has been given. The operation must be performed in the manner which has been agreed upon. A consent must be obtained for each individual operation performed. A consent to one operation will not authorize another or later operation, even though the second operation is for the same condition as the first. Authority may be given, however, for the operating physician to use his own judgment within certain reasonable limitations. It is usually mutually desirable for the physician to request the patient to allow him a reasonable amount of discretion in the performance of an operation. The operating physician must do whatever may be reasonably necessary for the safety of the patient, even in the case of a limited operation. The ordinary legal implication is that, if the patient under anesthesia had known beforehand of the circumstances that make a modification or extension of the operation necessary, or if at the moment he could exercise rational judgment, he would give his consent. The law implies consent in those cases, since it is assumed that the patient would consent to that which is for his benefit. However, a physician may not, in the course of an authorized operation, perform a different operation or

unauthorized supplementary surgery unless a true emergency exists. There must be a condition which, if not corrected, would be an imminent threat to life or could result in grave and irreparable injury to the health of the patient. It is not enough that the physician thinks that certain procedures will be beneficial to the patient.

The physician must also remember at all times that the patient's consent in no way relieves the physician of his duty to exercise due care in all that he does. Consent to the operation does not authorize any deviation from prevailing standards of care and caution.

An adult patient of sound mind, who knows that he can agree or refuse to submit to an operation, and who knows or has been fully and fairly informed by his physician as to what is to be done, and who then cooperates with the physician, has impliedly consented even though he has not consented in words. Such implied consent is customarily given in routine office practice. Implied consent to operations always involves the possibility of misunderstanding as to the purpose and scope of the undertaking and the difficulty of obtaining proof in the event of a controversy. The legal concept of implied consent usually permits a physician, in an emergency, to operate on or extend the scope of surgery on an unconscious or delirious person who is unable to make his own decision. This situation frequently arises in connection with serious accidents when the patient is unable to act for himself. If some one is present who has authority to act for the patient or if, without jeopardizing the welfare of the patient, such a person can be communicated with before operating, his consent should be obtained.

Oral consent to an operation is usually supplemented by implied consent. For instance, a patient, after orally consenting to an operation, cooperates with the physician in its performance. Oral consent, like implied consent, is open to misunderstanding and may be difficult of proof.

Written consent to an operation, although not required by law, is most desirable in order to avoid the misunderstandings that lead to lawsuits, and also to facilitate proof when necessary. The prudent physician will demand a written consent or authorization with respect to any operation which involves an element of recognized danger to the patient or which requires hospitalization.

No particular form is necessary to give validity to a written consent. The essential requirements are that it state clearly the nature and extent of the operation authorized and that it be signed by a person legally qualified to give consent. The authorization should state who is to be responsible for the administering of the anesthetic and the postoperative care of the patient if these services are to be performed by a physician other than the operating surgeon. The inclusion



of the place and date of execution and the signature of a witness are desirable, but only because they tend to facilitate proof. Generally speaking, the more vague and indefinite the terms of the consent, the more specifically it will be construed by the court. Care should be taken to spell out precisely and in the least technical language possible the exact procedure which the physician intends to perform or the particular condition which he seeks to relieve.

Authorizations and consents in Kansas should be preserved at least for two years after the operation and longer, if possible. If the patient is a minor or incompetent, the consent should be retained indefinitely and, in the case of a minor, until he becomes 21 years of age and one year thereafter.

If a physician requests a written consent to surgery from the patient at the time the arrangements for surgery are made, the patient will be inclined to inquire as to his condition, the nature of the procedure contemplated, and the attendant risks. Under these conditions there can be no allegation by the patient later that he was under sedation when he signed the consent form, or that a hospital attendant had stated that the signing of the consent form was a "mere formality." The patient is entitled to an explanation from the physician instead of from a hospital attendant who may be entirely unacquainted with the patient's condition. Legally, the physician may rely for his authority upon a consent obtained by the hospital for his benefit, but it is readily apparent that the physician may protect himself best by attending to the details of having the consent form completed, signed, and witnessed in his presence. The use of business methods in dealing with this phase of medicine may reduce the liability claims that arise from misunderstandings, from the use of poorly drawn or antiquated medioclegal forms, or failure to use any written forms.

A discussion of fees prior to the rendering of services and at the time the consent is given is also important.

No general written consent form would be applicable to the many types of surgical operations performed. However, the secretary's office would be glad to furnish specific forms which, in the opinion of the attorney for the Society, would give the member proper protection.

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### Psychiatric Association Meeting

The annual meeting of the Mid-Continent Psychiatric Association will be held at the Lassen Hotel, Wichita, September 12-14, according to announcement made recently by Dr. Austin J. Adams, Wichita, president.

The organization's "Early Bird" party will be held

the evening of September 12, with the scientific program beginning the morning of September 13. Dr. Robert W. Hyde, Providence, Rhode Island, and Dr. Robert Menninger, Topeka, will discuss "The Therapeutic Community," after which a panel discussion will be presented by Dr. James Galvin, Dr. Frank Adelman, Dr. Granville Jones, Dr. James Haddock, Dr. George Jackson, and Dr. Knostantin Geocariss.

The subject for the Sunday program is "Psychopharmacology" with Dr. L. J. West of the University of Oklahoma, Dr. Arnold Schneibel of the University of California, and Dr. Jackson Smith of the University of Nebraska as participants. The panel discussion which follows will include four additional speakers, Dr. Paul Feldman, Dr. Harold Meyers, Dr. Milford Ungerman, and Dr. Leopold Hofstatter.

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### Institute on Schizophrenia

An institute on chronic schizophrenia and hospital treatment programs will be held at the Osawatomie State Hospital, Osawatomie, October 1-3, under the sponsorship of the hospital and the Menninger Foundation and supported by the National Institute of Mental Health and Smith, Kline and French Laboratories. Its purpose is to derive specific practical treatment for mental hospitals from theoretical premises, to clarify divergent points of view, and to promote new ideas in research. The meeting will be national in scope.

No registration fee will be charged, but attendance will be limited. Those interested in attending are asked to write Dr. George Zubowicz, superintendent of the hospital.

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### Eye Tests Recommended

Children who begin the first, fourth, and ninth grades in September will receive tests of visual acuity if recommendations made by the Committee on Conservation of Eyesight and approved by the House of Delegates of the Kansas Medical Society are carried out. The recommendation suggested that an illiterate Snellen type test chart be used for first graders and a standard Snellen test chart for older children.

The examination is simple enough that school teachers and nurses can properly administer it. Children having substantially reduced visual acuity can be referred to their physicians immediately.

Other types of visual testing on a routine basis were discouraged by the committee.

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More than 95 per cent of vehicles involved in fatal accidents on United States highways in 1957 were in apparently good condition.



## American Medical Association Meeting

A variety of subjects occupied the attention of members of the House of Delegates of the American Medical Association at the organization's 107th annual meeting in San Francisco, June 23-27. Nothing discussed was of unusual importance to the Kansas delegates, but most items on the agenda carry sufficient interest to merit reporting.

The following items are included for the information of Kansas physicians:

**United Mine Workers**—Major discussion of relations between medicine and the UMWA Welfare and Retirement Fund centered on a reference committee report which concurred in a Board of Trustees opinion that final action on two resolutions adopted in December, 1957, should be postponed until the final report of the Commission on Medical Care Plans is received.

One of those resolutions declared that "a broad educational program be instituted at once by the American Medical Association to inform the general public, including the beneficiaries of the Fund, concerning the benefits to be derived from preservation of the American right to freedom of choice of physicians and hospitals as well as observance of the 'Guides to Relationships Between State and County Medical Societies and the UMWA Welfare and Retirement Fund' adopted by this House last June." The other resolution called for the appropriate A.M.A. committee or council to engage in conferences with third parties to develop general principles and policies which may be applied to their relationships with members of the medical profession.

In explaining its position that final action on the two resolutions should be taken only after proper study, the reference committee said it "anticipates that the final report of the Commission on Medical Care Plans will contain recommendations serving to clarify the relationships between the medical profession, the patient, and third parties, and the committee has been assured that this can be expected." The committee also urged the Commission to present its recommendations no later than December, 1958.

The House of Delegates, however, by a vote of 110 to 72, adopted a floor amendment "that this section of the Reference Committee report be amended to show that our A.M.A. Headquarters Staff is directed, under supervision of the Board of Trustees, to proceed *immediately* with the campaign which was originally ordered at Philadelphia last December, that no further delays will be tolerated, and that the Council on Medical Service be relieved of any further responsibility in this matter."

**Social Security Coverage**—In considering seven resolutions dealing with the inclusion of self-em-

ployed physicians under the Social Security Act, the House disapproved of three which called for polls or a referendum of the A.M.A. membership, one which favored state-by-state participation in Social Security, and two which called for compulsory inclusion on a national basis. Instead, the House adopted a resolution pointing out that "American physicians always have stood on the principle of security through personal initiative," and reaffirming unequivocal opposition to the compulsory inclusion of self-employed physicians in the Social Security system.

On the question of polls, the House expressed the opinion that any poll should be taken on a state-by-state basis and the results transmitted to the A.M.A. delegates from that state. It also pointed out that since there is no provision in the Constitution and Bylaws for a referendum of members, such a referendum would usurp the duties and prerogatives of the House of Delegates, which is the Association's policy-making body.

**Voluntary Health Organizations**—Dealing with problems that have arisen in raising and distributing funds since development of the concept of united community effort, the House adopted the following statement offered in the form of amendments from the floor: (1) That the House of Delegates reiterate its commendation and approval of the principal voluntary health agencies; (2) That it is the firm belief of the American Medical Association that these agencies should be free to conduct their own programs of research, public and professional education, and fund raising in their particular spheres of interest; (3) That the House of Delegates respectfully requests that the American Medical Research Foundation take no action which would endanger the constructive activities of the national voluntary health agencies; and (4) That the Board of Trustees continue actively its studies of these perplexing problems looking forward to their ultimate solution.

**Veterans' Medical Care**—Pointing out that the federal government spent \$619,614,000 on hospitalized medical care of veterans in VA hospitals in 1957, of which about 75 per cent had non-service-connected disabilities, and that ways and means of obtaining economy in federal government are allegedly being sought by Congress at this time, the House urged Congressional action to restrict hospitalization of veterans at VA hospitals to those with service-connected disabilities. It also recommended that the American Medical Association suggest to the Dean's Committees that they restrict their activities to Veterans Administration hospitals admitting only patients with service-connected disabilities.

**The Medicare Program**—In disapproving a resolution calling for repeal, modification, or amendment

of Public Law 569, the House took the position that desired changes in the Medicare program could be accomplished through modification of the present implementing directives without the necessity for new legislation. The House reaffirmed the action taken last year in New York recommending that the decision on type of contract and whether or not a fee schedule is included in future contract negotiations should be left to individual state determination. Also reaffirmed was the contention that the Dependent Medical Care Act as enacted by Congress does not require fixed fee schedules; the establishment of such schedules would be more expensive than permitting physicians to charge their normal fees, and fixed fee schedules would ultimately disrupt the economics of medical practice.

**Washington Office**—The House adopted a resolution requesting the Board of Trustees to make an immediate survey and re-evaluation of "the functions and effectiveness of the over-all A.M.A. legislative system, including the Washington office, in the light of present-day needs of the government, public and medical profession alike for effective liaison between government and medicine on all matters affecting the public's health and adequate, prompt and accurate transmittal to the full membership of the A.M.A. of information on all current public issues in which the physician has a direct interest." The House asked that the Board of Trustees implement, as rapidly as possible, all changes and additions that its survey discloses are desirable to achieve the basic purpose of the resolution, "effective public and government relations."

**Medical Aspects of Hypnosis**—A Council on Mental Health report on "Medical Use of Hypnosis" was approved by the House, which recommended that it be published in the *Journal of the American Medical Association* with bibliography attached. The report stated that general practitioners, medical specialists, and dentists might find hypnosis valuable as a therapeutic adjunct within the specific field of their professional competence. It stressed, however, that all those who use hypnosis need to be aware of the complex nature of the phenomena involved. Teaching related to hypnosis should be under responsible medical or dental direction, the report emphasized, and should include the indications and limitations for its use. The report urged physicians and dentists to participate in high level research on hypnosis, and it vigorously condemned the use of hypnosis for entertainment purposes.

**Over-the-Counter Medications**—The House endorsed recommendations by the Public Relations Department that:

The A.M.A. join with other interested groups in setting up an expanded voluntary program, coordinated by the National Better Business Bureau, which will seek to eliminate objectionable advertising of over-the-counter medicines.

The A.M.A. counsel with the National Better Business Bureau in the selection of a physicians' advisory committee.

The established facilities of the A.M.A., such as the Chemical Laboratory, the offices of the various scientific councils, and the Bureau of Investigation, be made available, so far as is feasible, to aid in the carrying out of this program.

The Public Relations Department continue its liaison work with the various groups involved and assist in the development and operation of this program in any way possible.

The A.M.A. become a sustaining member of the National Better Business Bureau, giving evidence of its willingness and desire to support this organization in its worthwhile activities.

**Miscellaneous**—The House approved "Suggested Guides for the Organization and Operation of Medical Society Committees on Aging" submitted by the Council on Medical Service.

The House also requested that any funds provided under the Public Assistance provisions of the Social Security Act for medical care of the indigent be administered by a voluntary agency such as Blue Shield on a cost plus basis or by a specific agency established by the medical society of the state in which indigent care is rendered.

In a study of problems pertaining to licensure by reciprocity, the House directed that the Board of Trustees consult with the Federation of State Medical Boards in an attempt to find a satisfactory solution.

In another action it urged all members of the House of Delegates to give full consideration to the preliminary report of the Committee on Preparation for General Practice and to submit comments and suggestions to that committee.

A point of special interest to the Kansas delegates was the fact that the House approved an inter-professional code for physicians and attorneys. Kansas, at its Society meeting in May, approved a similar code for this state.

At the opening session Dr. David B. Allman, retiring president, urged every physician to rededicate himself to the service of mankind and every medical society to strengthen its disciplinary system "to prevent the very few from besmirching the vast majority of us."

Dr. Gunnar Gundersen, who took office as president, called upon the medical profession to accept



its full responsibilities in promoting better world health, brotherhood, and peace, adding that "the time has come when medical statesmanship must be used to augment the methods of political diplomacy."

Dr. Louis M. Orr, urologist of Orlando, Florida, was named president-elect for the coming year. Dr. W. Linwood Ball, Richmond, Virginia, is vice-president. Dr. E. Vincent Askey, Los Angeles, was re-elected speaker of the House.

The 1960 meeting of the association will be held in Miami Beach, and the 1961 session will be in New York City.

George F. Gsell, M.D., *Delegate*  
Lucien R. Pyle, M.D., *Delegate*

## BOOK REVIEWS

*Aids to Medical Diagnosis. Eighth Edition. By G. E. Frederick Sutton, M.D. Published by Williams and Wilkins Company, Baltimore. 399 pages. Price \$350.*

The British have a facility for brevity and clarity in scientific writing which is unfortunately rare in writers on this side of the Atlantic. Who would expect to find an American book which is small enough to fit into one's hip pocket and yet which contains a vast amount of detailed information on differential diagnosis? Dr. Sutton's book is a volume in the Students' Aids Series which might seem to remove it from consideration for use by practicing physicians, but we in Kansas have, by a large majority, adopted the philosophy that physicians remain students for 40 years—not four. So it is quite logical to assume that a book of this series might be of some use to practitioners.

It is in reality a compact book of differential diagnosis, not simply a collection of "aids" to medical diagnosis, but it is not—nor does it pretend to be—encyclopedia. While it will frequently be necessary to search for specific bits of information in other works, one can hardly fail to benefit by studying this small book and by referring to it frequently, and its small size and low price should make it a favorite for this purpose.

In contrast to the superior nature of the textual material, the printing and binding are somewhat primitive by American standards, and the few illustrations of electrocardiographic tracings and roentgenograms serve rather to convey the author's idea than to give an accurate impression of the appearance of the originals.—J.D.R.

*Dietary Prevention and Treatment of Heart Disease. By John W. Gofman, M.D., Alex V. Nichols, Ph.D.,*

*and E. Virginia Dobbin, Dietitian. Published by G. P. Putnam's Sons, New York City. 256 pages. Price \$3.95.*

This book represents a rather comprehensive approach to the title subject by Dr. Gofman and his associates. The first 60 pages of the book are devoted to a review of the nature of coronary heart disease and the importance of dietary components in the etiology of coronary heart disease. This is written in lay terms and is a good review of the basic problem. The entire subject is treated in a simplified manner which makes it suitable for lay interpretation.

The discussion of saturated and unsaturated fats, hydrogenated and unhydrogenated fats is a good résumé of the subject for the non-medical person. The authors take sharp issue with certain popular concepts regarding the value and importance of unsaturated vegetable fats in the diet. The primary criticism of this portion of the book is the unusual emphasis which is put upon the rather technical aspects of ultra centrifugal studies. This is probably not necessary in a book of this type but reflects the authors' long interest in this field.

There is an excellent chapter on dietary evaluation for the patient. This and chapters on the use of vegetable oils in the diet and carbohydrate substitution with numerous recipes constitute the remainder of the book.

The book is well written and, for one interested in this subject, provides a concise and valuable source of information.—J.E.C.

*Clinical Enzymology. Edited by Gustav J. Martin, Sc.D. Published by Little, Brown and Company, Boston. 241 pages. Price \$6.00.*

This book will not be of much use to the average practicing physician. It consists of seven chapters, each one of which is an essay dealing with a different phase of enzymology. Three chapters entitled Protein Biology, Polymerases in Biology, and Recapitulation and Perspectives for Clinical Enzymology were written by the editor, Gustav Martin. The remaining four chapters entitled Chemistry of Enzymes Used Clinically, Biochemistry of Enzymes Used Clinically, Parenteral Use of Enzymes in Medicine, and Diagnostic Uses of Enzymes were written by several others. As a result this book is more a series of disjointed essays than one of smooth continuity.

The chapters on biology and chemistry of enzymes are of necessity brief and to the point. But they are still detailed enough to provide difficult reading for the average physician. These chapters are written in a sketchy fashion, and the reader often wishes for



more details so that he can be sure of understanding what he is reading.

The chapters on the actual clinical application of enzymology are regrettable in that one gets the impression that the authors (only one is an M.D.) have had little to do with the actual care of patients. These chapters are essentially a brief review of the clinical literature. The whole host of enzymes in the blood that are of clinical use is reviewed as well as the various enzymes that are administered parenterally for therapeutic effect. There is very little in this volume on the various enzymes which are of theoretical interest in the metabolism of the body, the clinical measurement of which has no practical value in treating patients.

This is the type of book that will not find its way to many physicians' own libraries, but will be a well used reference in an academic medical center. One of the most valuable features of this volume is the extensive bibliography at the end of each chapter. Anyone wanting detailed information on a phase of clinical enzymology will find this book too brief, but the bibliography will be useful in referring the reader to more detailed writings.—W.G.C.

## ANNOUNCEMENTS

Annual meeting, Colorado State Medical Society, Broadmoor Hotel, Colorado Springs, September 24-27. General sessions, sectional meetings, more than 100 scientific presentations. Write Colorado State Medical Society, 835 Republic Building, Denver 2, Colorado.

Fifteenth annual meeting, American Medical Writers' Association, Hotel Morrison, Chicago, September 26-27, following 23rd annual meeting of Mississippi Valley Medical Society at the same hotel, September 24-26. For information on either session, write Harold Swanberg, M.D., 209-224 W.C.U. Building, Quincy, Illinois.

Two courses in obstetrics for general practitioners, offered by Woman's Hospital, New York City, October 16-30. One is "Ante-partum Care" and the other is "The Conduct of Labor." Information available from Mr. Carl P. Wright, Jr., Woman's Hospital, 141 West 109th Street, New York 25, New York.

Sectional meetings of International College of Surgeons: Billings, Montana, September 10; Chattanooga, Tennessee, September 29; Mobile, Alabama,

October 3-4. Write College, 1516 Lake Shore Drive, Chicago 10, Illinois.

Fourth annual meeting, American Rhinologic Society, Palmer House, Chicago, October 17-18. No registration fee. Write Dr. Robert M. Hansen, 1735 North Wheeler Avenue, Portland 17, Oregon.

Second Oklahoma Colloquy on Advances in Medicine, devoted to arthritis and related disorders, November 12-15, sponsored by Oklahoma Medical Center, Geigy Pharmaceuticals, Wyeth Laboratories, Upjohn Company, Pfizer Laboratories, Schering Corporation, and Oklahoma Chapter, Arthritis and Rheumatism Foundation. Registration fee of \$25. Missouri-Oklahoma football game at Norman on final day of meeting. Write Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 Northeast 13th Street, Oklahoma City.

A symposium on infectious diseases will be held at Battenfeld Auditorium, University of Kansas Medical Center, Kansas City, September 19, under joint auspices of the American Academy of General Practice, the medical school, and Lederle Laboratories. Speakers from six medical schools will participate. Subjects will be staphylococcal infections and their control and treatment, new therapeutic agents, and perplexing disorders. There will be opportunity for questions and answers. Dr. Robert Weber, of the University of Kansas, will be one of the speakers.

Postgraduate course on orthopedic surgery and fractures, September 29, University of Oklahoma School of Medicine, Oklahoma City, preceding meeting of American Fracture Association, September 30-October 2. Seven hours credit by AAGP. Write Office of Postgraduate Education, 801 Northeast 13th Street, Oklahoma City.

Specialty meetings for practicing physicians, Oklahoma City, October 3 and 4, timed to coincide with Oregon-Oklahoma football game. Write Office of Postgraduate Education, 801 Northeast 13th Street, Oklahoma City.

### CLASSIFIED ADVERTISEMENTS

WANTED—PEDIATRICIAN to join clinic in central Kansas town of 40,000. New modern clinic building. Everything furnished except automobile. Your opportunity to become partner in one of the oldest medical partnerships in Kansas. Guaranteed income \$15,000 first year. Write the JOURNAL 10-58.

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## The Cervical Syndrome

### *An Irritative Process of Cervical Nerve Roots with Many and Varied Symptoms*

HARRY G. KROLL, M.D., *Topeka*

The cervical syndrome is an irritative process of the cervical nerve roots which has many and varied symptoms. The symptoms may be those of neck pain, pain radiating to the shoulder and chest, sometimes pain of the upper extremity, numbness or paresthesia and weakness in the hand, limited motion of the neck, and even occipital headache.

The syndrome is represented by such frequently described entities as: protruded cervical discs, "cervical disc, shoulder, arm, and hand syndrome," cervical arthritis, degenerative changes of the spine, constriction of the intervertebral foramen, cervical spondylolisthesis, and, finally, uncovertebral osteophytes and osteochondrosis.

Although the problem is one arising primarily in the neck, its many and varied clinical manifestations often make the diagnosis difficult. To understand some of the problems associated with the cervical syndrome, it might be well to review the anatomy peculiar to the cervical vertebrae. Of the seven cervical vertebrae, the first two, atlas and axis, differ from the remaining five. There is minimal motion between the atlas and skull; the principal motion between these two cervical vertebrae comprises a nodding and rotation of the head with lateral bending. Actually, the greatest motion seems to occur when the head is tilted slightly laterally and must forcibly be held in the forward position.

Motion of the remaining cervical spine is essentially forward flexion and extension, with rotation primarily in the atlas-axis level, and to a lesser degree in the entire cervical spine. In a roentgenographic study of normal cervical spines, Jackson believed the apex of a curve in extension occurred at C-4 and C-5, while the flexion apex occurred at C-5 and C-6.

Steindler<sup>22</sup> mentions that the spine shows a gradual curve in forward flexion and that there may be an "angular break" in the lower half of the cervical spine. With lateral bending there is greater motion, and he observes that one-half to three-fourths of the articular surfaces are in contact even with maximum side motion. Davis studied motion of normal cervical spines by roentgenograms and charted the levels of motion. He found that flexion is gradual, and extension has an apex between C-3 and C-6.

Overton<sup>11</sup> and Jackson<sup>8</sup> agree that the principal motion between these first two cervical vertebrae is rotation. Overton feels that any anatomical variation of these articulations would contribute toward more difficult motion of the neck. In his 36 cadavers which were dissected, 18 specimens showed these variations in the axio-cervical plane of the apophyseal articular processes both in the angle of inclination and also in associated degenerative changes. Another anatomical peculiarity of these two vertebrae is the lack of an intervertebral foramen for passage of the nerve root at this level. The first cervical nerve emerges beneath the occiput through a small groove in the posterior arch of the atlas, immediately behind the vertebral artery. The second cervical nerve emerges between the posterior arch of the atlas and the trans-

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**The etiology of the cervical syndrome, the mechanics of production of symptoms, and a brief résumé of conservative and surgical methods of treatment are presented.**

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verse process of the axis. Therefore, the first and second cervical nerves lie posterior to the vertebrae.

The remaining six cervical nerves emerge through an intervertebral foramina or canals which are usually ovoid shaped; the medial walls of these canals are formed by the lateral portion of the bodies including the uncinate processes and the intervertebral joints; superiorly by the pedicles and inferior articular processes; posteriorly by posterior and superior articular processes; and the floor of the foramina by the pedicles and  $\frac{3}{4}$  of the superior articular surfaces of the succeeding vertebrae. As the nerve roots emerge from these foramina, they occupy the interval almost completely in the antero-posterior diameter, but they do not occupy the foramina so completely in the superior-inferior direction. The vertebral artery pursues a course anterior to the cervical nerve roots through the transverse foramen of the six cervical vertebrae, except for variation in the seventh cervical vertebra. It is because of this relationship in the superior-inferior diameter of the foramen, with the nerve root, that loss of an intervertebral space does not necessarily produce impingement on the nerve root due to adequacy of the foramen in a superior-inferior direction. It is this relationship of cord and nerve root at the cervical level that is credited with symptomatology after minor trauma or irritation. In Overton's dissection he observed that the spinal cord and nerve roots more nearly fill the canal and foramina in the cervical than in either the thoracic or lumbar vertebrae.

Of the articular surfaces, Jackson's interesting study accounts for five joints between each pair of cervical vertebrae. There are two apophyseal joints representing the superior and inferior articular surfaces in the horizontal plane at approximately 45 degrees; secondly there are two synovial joints between the lateral surfaces of the bodies of each vertebra; and finally there is a single solitary cartilaginous surface between the bodies of the vertebra in the central portion which actually involves the intervertebral cartilaginous disc.

The cervical syndrome can be produced in many ways. Percentage wise, authors disagree as to the most common underlying process producing this syndrome. Overton<sup>19</sup> reported, in 123 consecutive cases of cervical lesions, that 75 patients showed degenerative arthritis causing nerve root pain. Sixty-six of this group showed involvement below the fourth cervical interspace. From his review of the literature, he concluded that 61.8 per cent of reported cases had a degenerative arthritis of the cervical spine. Symptoms associated with such a process are pain in the upper extremities, pain in the shoulder and shoulder girdle, the interscapular and precordial area, and occipital pain, or headache.

Although many authors note that patients may recall earlier trauma, often of a minor degree, a history

of previous trauma may be completely lacking. Occasionally there is a complaint of a bilateral segmental type of pain, and more frequently a night pain which disturbs sleep and is relieved by sitting or walking. On examination symptoms can often be reproduced with digital pressure over the transverse process of the affected cervical vertebra. There may be loss of cervical lordosis with limitation of motion to the neck and evidence of muscle spasm. Sudden movements of the head or jerking motion of the neck may initiate acute symptoms. Love<sup>12</sup> finds that cervical arthritis "is a rare cause of pain referred downward into either upper extremity." Likewise there is rarely any evidence of muscle weakness peripherally from arthritic changes.

Roentgenograms of an arthritic cervical spine may show marginal lippling, narrowing of the intervertebral space, osteophyte formation, and partial obliteration of the intervertebral foramina and, finally, a loss of normal cervical lordosis. However, x-rays of the cervical spine may show maximal changes with minimal or no symptoms. In contrast, nevertheless, minimal changes may be demonstrable by x-ray in a patient with severe symptoms of a cervical syndrome.

The mechanism of production of symptoms in these patients was attributed by Overton to be osteophytes or "posterior spurs" projecting into the foramina which narrowed their horizontal or antero-posterior diameter just anterior to the nerve root and led to root irritation. In his study of 36 cadavers, he found 28 specimens with arthritic changes, but he had no method of correlating symptoms. Because of anatomical peculiarities, Morton<sup>16</sup> stresses the greater incidence of hypertrophic changes and subsequent encroachment on nerve roots of the cervical level in distinction to the thoracic or lumbar level. Finally, as a differential point in proof of the underlying mechanism in cervical arthritis, Steindler emphasizes that cervical traction produces relief in distinction to other nonresponsive forms of the cervical syndrome.

Another lesion with manifestations of the cervical syndrome is the "cervical disc." Both Love and Craig<sup>2</sup> have estimated that protrusion of a cervical disc accounts for 10 per cent of all herniated discs. The patient with this lesion may have unilateral radiation of pain into the shoulder, arm, forearm, and hand, which is often associated with numbness or paresthesia. Similarly there is loss of the normal cervical lordosis with associated muscle spasm; symptoms may be initiated or reproduced by coughing and sneezing. Patients may also be awakened at night by pain which is relieved by sitting or walking. This numbness or paresthesia is more commonly expressed in the thumb or index finger and reflects a probable lateral herniation of a disc at C-6; similar symptoms of the middle finger are from a C-7 disc, and of the fourth and fifth digits from a C-8 disc herniation. Central herniation of a cervical disc more common-



ly produces a lesion resembling a cord tumor.

Eaton,<sup>4</sup> in his discussion of the protruded disc, believed it to be one of the most common cervical lesions. His clinical findings by anatomical distribution were in agreement with those of Love. Physical examination in patients with a protruded disc may demonstrate no positive findings early in the process. The most frequent objective findings, though, are some degree of loss of pain and temperature sense and tactile perception of the fingers. There may be some atrophy of the triceps muscle and a decreased triceps reflex. Irritation of the sixth root may lead to deltoid atrophy, and irritation of the eighth root to atrophy of the small muscles in the hand.

Roentgenographically, the most significant finding is a loss of the normal lordotic curve, and occasionally slight narrowing of the intervertebral space with hypertrophic changes at the level of the disc. This latter finding is by no means constant, and it should not be relied upon for a diagnosis. Ehni<sup>14</sup> found, in 18 cases of cervical disc which were explored, four had normal spines by roentgenogram, and 14 showed minimal changes.

To arrive at a diagnosis, symptoms, physical findings, and roentgenograms, when positive, are all beneficial. On occasion a protein determination of spinal fluid may be helpful. If it is elevated beyond 40 mg. per cent, it may suggest a space-consuming lesion. In 1951 Love felt that myelography was rarely indicated. At present myelographic studies are utilized in most cases.

The mechanism of nerve root irritation arises from lateral protrusion of a disc at the point where the nerve root enters the intervertebral canal. Eaton attributes the underlying mechanism of pain which is produced by coughing or sneezing, not to increased intraspinal pressure, but rather to an increase of intrathoracic and intra-abdominal pressure with blockage of flow from intervertebral veins. Engorgement of epidural spaces produces direct pressure on nerve roots, or stretches the root by displacing the dura toward the cord.

Similarly, root pain may be intensified by stretching, i.e., movements of the cervical spine and downward traction of arms. The intensification of pain at night may be due to sustained single position—as in sleeping supine. The spinal column elongates while horizontal, causing change in aperture of the foramina in the antero-posterior position with hyperflexion. Anterior subluxation is produced by flexion and creates narrowing of the foramina with secondary compression of the nerve root. It must be remembered that in the normal cervical vertebrae, flexion with forward slipping of the inferior facet may narrow the intervertebral foramen in both the transverse and vertical diameter. If it is extreme, it produces symptoms of root irritation.

Several authors have described an entity which is

primarily manifested by headaches radiating to the occiput or frontal area, and associated with soreness and stiffness in the upper portions of the neck. The tenderness was noted to be over the third cervical nerve in all cases as it emerged from the foramen, and pressure on this nerve produced the occipital headaches. As with other cervical lesions, there was a loss of normal cervical lordosis with associated muscle spasm. One study showed that in 11.3 per cent of 186 cases of cervical radicular pain, it was localized in the third cervical nerve segment with sensory distribution to the scalp, posterior auricular, occipital, and posterior parietal zones. Roentgenograms in these patients showed variations of apophyseal articulations in the second and third cervical vertebrae.

We should mention other entities which may contribute to the cervical syndrome, or should be differentiated: spondylolisthesis with localized neck pain, increase of cervical lordosis but no radicular radiation into extremities; rheumatoid spondylitis with loss of neck motion and normal curve, muscle spasm, but rarely any cervical radicular pain—the underlying process involving apophyseal joints with synovial changes, and eventual calcification of paraspinal ligaments; also congenital anomalies including unco-vertebral osteophytes and osteochondromatosis.

## Treatment

Treatment of the cervical syndrome is aimed at relieving the compelling symptoms of pain and disability associated with limited motion. The attrition of the articular surfaces, the degenerative changes, and the secondary osteophyte formation are often relieved with salicylates and antirheumatics. Additional measures include application of heat—diathermy, moist heat, or infra-red lamp—and mild massage. Newer medications for relief of symptoms include combination of prednisolone and meprobamate for inflammation and the various muscle relaxants for muscle irritation and spasm. These preparations are all of benefit when used judiciously.

If spondylitic changes are found in a patient of advanced age, treatment with cervical traction is not always rewarding and may occasionally aggravate pain and stiffness. Temporary immobilization of the neck with a Shanz or plastic collar may be of more benefit.

Post-traumatic irritation producing the cervical syndrome is most frequently encountered days or even weeks following the traumatic incident, and is commonly described as the "whiplash" injury. The use of intermittent neck traction which is supplemented by conservative measures as outlined, including heat and medication, will usually relieve the symptoms. When resting or sleeping, the patient is encouraged to arrange a head halter traction device

on his bed at home. Such a device can be obtained commercially and requires only three to four pounds of weight. One must be cautious about excessive weight as this may only aggravate pain and muscle spasm. Because fatigue and apprehension may also be contributing factors, the use of tranquilizers may in turn allay these symptoms. The cervical collar may also be of assistance when exquisite tenderness and considerable muscle spasm exist. However, care must be observed in prolonged use of the cervical collar as patients readily become dependent upon such contrivances.

An infrequent form of the cervical syndrome is seen in the cervical disc. This entity is not always amenable to the various conservative measures just described. If a thorough trial of medication, heat, and traction does not relieve the symptoms, and the clinical picture is conclusively one of a herniated disc, then surgical intervention is indicated in the form of a laminectomy and removal of the offending disc fragments.

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The final test of science is not whether its accomplishments add to our comfort, knowledge and power, but whether it adds to our dignity as men, our sense of truth and beauty. It is a test science cannot pass alone and unaided.

—David Sarnoff

# Lung Cancer

## *Value of Cytological Studies of Bronchial Secretions*

C. A. HELLWIG, M.D., *Halstead*

While Papanicolaou<sup>1</sup> recognized cancer cells in vaginal smears as early as 1928, his diagnostic method did not become widely known until 15 years later, following publication of his and Traut's<sup>2</sup> beautiful atlas, *Diagnosis of Uterine Cancer by the Vaginal Smear*. Gynecologists accepted this method enthusiastically and recommended it as part of every routine physical examination in the office, outpatient department, and hospital (Meigs,<sup>3</sup> Ayre<sup>4</sup>).

Soon the race for discovering early cancer took on the aspects of a stampede (Dockerty<sup>5</sup>). Every conceivable body orifice was swabbed, scraped, aspirated, and massaged, for cancer cells. The theoretical relationship between cancer in situ and invasive cancer was widely discussed. Terms like "pre-cancer" or "near cancer" were used to explain "suspicious" cells, and Papanicolaou introduced five different classes of abnormal cells. From a study of vaginal smears in 1948, Wiles and I<sup>6</sup> concluded that the cytologic method is of little use if a suspicious lesion is accessible to biopsy.

The problem is different in lung cancers, particularly in lesions of the upper lobe and of the periphery, which are not accessible for biopsy. A method which could provide microscopic proof of the presence of carcinoma when biopsy cannot be performed would certainly be of immense importance in the diagnosis of pulmonary neoplasm.

The technic which is used today by most laboratories was introduced by Dudgeon and Wrigley,<sup>7</sup> London, in 1935. They fixed fresh sputum smears in Schaudinn's solution and stained with hematoxylin and eosin. In 68 per cent of their 58 cases of proved carcinoma of the lung or respiratory tract, malignant cells were demonstrated in the sputum. In the majority of cases these authors were able to predict the histologic type of growth by cell study. Only one false positive result occurred in this series, the atypical cells arising in an inflammatory lesion.

In 1946 Herbut and Clerf<sup>8</sup> expressed the belief that bronchial secretions are superior to sputum for cytologic studies because localization of the source of the malignant cells can be accomplished. These authors obtained positive results in 82 per cent of 57 proved cases of bronchogenic carcinoma, while

bronchoscopic biopsy was successful in only about one-half of the cases.

### Analysis of Cases

This paper is based on 201 cytologic examinations of sputum and bronchial secretions from 186 patients. We tried to evaluate the usefulness of the procedure in diagnosis of patients who were suspected on clinical grounds to have lung carcinoma.

There is no agreement among cytologists whether sputum or bronchial secretions are preferable for cytologic examination. One disadvantage of sputum examination is failure to localize the lesion. Cancer cells may appear in the sputum from a malignant lesion anywhere in the respiratory tract, pharynx, or esophagus. In two of our cases the sputum contained malignant cells arising from an esophageal carcinoma. In one case the cardia was found to be the source of carcinoma cells, and in another the larynx was the source of carcinoma cells found in the sputum.

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**Cytologic studies, in the author's experience, are useful to indicate the need for intensive study of the patient, not to give conclusive evidence of carcinoma. An analysis of the results of 201 examinations is briefly presented.**

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In contrast to examination of sputum, examination of bronchial secretions has the advantage that the source of the malignant cells, particularly the side involved, can be more accurately determined. Both methods of examination, study of sputum, and of bronchial secretions, should be utilized whenever possible. The advantage of sputum examination is the ease of obtaining repeated samples and therefore the possibility of avoiding false negative reports.

If the results of sputum examination prove positive, while the results of examination of bronchial secretions are negative, it is assumed that the secretions were not aspirated from the bronchus involved by the carcinoma. If, therefore, secretions submitted in a suspected case of bronchogenic carcinoma are nega-



TABLE I  
DIAGNOSTIC METHODS IN 45 CASES

	<i>Micro. Findings</i>		<i>Total Cases</i>
	POS.	NEG.	
Bronchoscopic biopsy	9	1	10
Bronchial washings	20	4	24
Sputum	6	8	14
Cytology only	17	3	20
X-ray & phys. exam.			15

tive for carcinoma cells, subsequent examinations of the sputum should be carried out.

In three of our cases, the specimen of sputum was negative for carcinoma cells while the bronchial secretions proved positive; the reverse, sputum positive and bronchial secretions negative, was found to be true in two cases.

### Accuracy of Diagnosis

In our series of 49 cases of pulmonary carcinoma, a tissue diagnosis of primary bronchogenic carcinoma was established in 38 and a diagnosis of metastatic carcinoma in four. Tissue diagnosis was made on specimens obtained by bronchoscopy, surgical exploration, lobectomy, lymph node biopsy, and seven autopsy cases. In the remaining seven cases, tissue was not available for histological examination; however, carcinoma cells were found in the sputum or in the bronchial secretions, and the patients presented clinical symptoms and roentgenological evidence of lung carcinoma.

TABLE II  
METHODS OF PREOPERATIVE DIAGNOSIS  
IN 13 LOBECTOMIES (PNEUMONECTOMIES)

Bronchoscopic biopsy	3
Cytology only	5
Clinical only	5

Of 27 patients with lung carcinoma who underwent bronchoscopy, tissue was obtained for histologic study in ten. The results of biopsy were positive in nine cases (33 per cent). In 17 of the 27 patients (63 per cent), the only microscopic evidence of carcinoma was the presence of malignant cells in bronchial secretions.

Thoracotomy was carried out in 19 cases of our series. In nine, bronchoscopy established a positive tissue diagnosis. In seven patients atypical cells were present in bronchial washings, while the other three had only clinical and x-ray evidence of carcinoma.

### Cytological Diagnosis

Papanicolaou recommends reporting cytological findings in five categories: group 1, negative; group 2, probably benign; group 3, suspicious; group 4, probably malignant; group 5, malignant.

Since all cytologists seem to agree that a positive smear alone does not justify a radical operation, and that even the most experienced cytologist may encounter cells which have all the characteristics of "malignant" cells but arise from non-malignant lesions, we prefer to make a diagnosis of "positive" or "negative" for atypical cells, without subdivisions or subterfuge. We believe that D. E. Miller's<sup>9</sup> advice in 1949, based on a study made in our laboratory of bronchial secretions and sputum in lung cancer, still holds today: "The cytologic study of secretions should be added to our diagnostic armamentarium, but used as an adjunct to stimulate more intensive study of the patient rather than as conclusive evidence of carcinoma."

TABLE III  
CYTOLOGICAL FINDINGS IN 7 CASES  
WHICH HAD BOTH BRONCHIAL WASHINGS  
AND SPUTUM EXAMINATION

Bronchial washings pos.; sputum neg. ....	3
Sputum pos.; bronchial washings neg. ....	2
Bronchial washings and sputum pos. ....	2
Bronchial washings and sputum neg. ....	0

### Conclusions

1. During the last three years, 201 bronchial secretions and sputa from 186 patients were examined at the Hertzler Clinic. Of the 201 smears, 61 were positive. Of the 61 positive smears, 56 were correct and 5 were false positive. Four of the 140 negative smears were false negative.

2. There were 45 cases of bronchogenic carcinoma and four cases of metastatic carcinoma in our series. Bronchoscopic biopsy provided histologic evidence of carcinoma in nine, while cytological findings were positive in 25 of 33 cases. The other patients with bronchogenic carcinoma were operated upon without microscopic evidence of carcinoma. They were surgically explored because of clinical and x-ray findings.

3. Of 19 cases in which thoracotomy was performed, cytologic findings in bronchial secretions and sputum provided the only microscopic suggestion of carcinoma before operation in seven cases (37 per cent).

4. Because of the vital importance of earlier diagnosis, it is felt that every patient with an undiagnosed

lesion of the chest should be given the benefit of cytologic examination of sputum or bronchial secretions.

5. There should be uniformity in reporting cytological findings. We recommend the use of only two categories: negative or positive for atypical cells.

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# Temposil

## *New Chemotherapy for Treatment of Alcoholism*

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Everyone familiar with the treatment of alcoholics knows that disulfiram (Antabuse) has been widely used as an adjunct in the treatment of alcoholism. That its use has been of great help to many sufferers of this malady is unquestioned. Its disadvantage, however, in spite of the fact that it helps maintain longer periods of continued sobriety, lies in its unpleasant side effects which undoubtedly cause many patients to discontinue the drug and return to drinking. These side effects are drowsiness, nausea, impotency, unpleasant taste, offensive body odor, and headache. All side effects are not present in all individuals taking the drug, but several are usually present in different combinations.

Four years ago research was begun at the University of Toronto to find a drug which would make drinking distinctly unpleasant to the alcoholic and at the same time have fewer unpleasant side effects. Citrated calcium carbimide, made into a delayed action tablet of 50 mg. and marketed under the registered name of Temposil,\* is the result of that study.

When Temposil is given before ingestion of alcohol, the blood acetaldehyde rises to high levels: 0.4 to 0.8 mg. per 100 cc. or higher. If alcohol is taken

by a person with such high acetaldehyde blood levels, vasodilatation, tachycardia, hyperpnea, and tremor result. The rise of acetaldehyde blood level is rapid, occurring within hours after ingestion of citrated calcium carbimide. Disulfiram, in contrast, often requires several days of ingestion to produce the same effect.

Smith, Wolford, Weber, and McLean<sup>4</sup> tested 73 patients for reaction to Temposil after ingestion of alcohol and came to the following conclusions:

1. There are no undesirable side effects such as impotency, headache, lethargy, offensive body odor, or drowsiness.

2. Temposil should be taken daily to be effective since it is more rapidly inactivated and excreted than disulfiram.

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**Any drug which gives promise of helping alcoholics maintain sobriety is worthy of study. This brief report concerns Temposil, citrated calcium carbimide, which appears from early investigation to produce that effect without undesirable reactions.**

---

\* Temposil is marketed by Lederle Laboratories.

3. Temposil-alcohol reactions are much milder than those of disulfiram-alcohol, creating a lesser hazard if the patient drinks when he is sensitized.

My study was undertaken to determine the time interval between administration of 50 mg. of Temposil and a disagreeable reaction severe enough to discourage the alcoholic from further drinking. Forty alcoholics were tested.

All patients were given 50 mg. of Temposil, followed at intervals of 3, 6, 9, 12, and 15 hours by administration of two ounces of whiskey. Eight inebriates were tested for each of the lapsed time intervals.

Severity of Temposil-alcohol reactions was graded by the number of unpleasant symptoms present, the following being considered: conjunctival infection, flushing of face, headache, dyspnea, palpitation, tremors, vertigo, drowsiness, nausea, and vomiting.

The eight persons tested showed unpleasant symptoms as plotted on Figure 1. This indicates that the number of symptoms diminished in accordance with the lapse of time between administration of Temposil and ingestion of whiskey. It was also noted that the severity of symptoms diminished as the time lapse lengthened. At the 12-hour interval symptoms were mild and could be considered minimal, and at the 15-hour interval unpleasant symptoms were negligible.

### Conclusions

1. Temposil is a safe chemotherapeutic agent for reinforcing sobriety in the alcoholic.
2. Temposil has a rapid action in producing unpleasant symptoms in the alcoholic if alcohol is consumed within 12 hours after taking the drug.

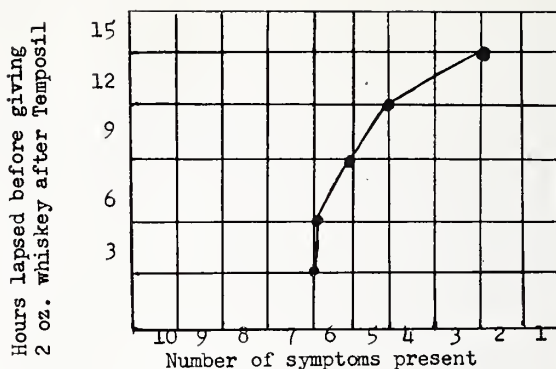


Figure 1

3. Temposil produces a sufficiently severe reaction to be a definite deterrent against drinking for a 12-hour period.

4. Temposil produces none of the unpleasant side effects common with the use of disulfiram.

Temposil in 50 mg. dosage every 12 hours provides maximum protection for the alcoholic.

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The National Library of Medicine has compiled a lengthy bibliography on staphylococcal infection, which, it is hoped, may be of value to both private and public health physicians who are engaged in combatting the increased incidence of antibiotic-resistant staphylococcal infection in the home, community, and hospital. The bibliography will be sent at no cost on request to

National Library of Medicine  
7th St. and Independence Ave., S. W.  
Washington 25, D. C.



# Carcinoid Syndrome

## *A Tumor Causing Bouts of Diarrhea, Cutaneous Flushes, Intermittent Abdominal Cramps, and Valvular Heart Disease*

LEO P. CAWLEY, M.D., *Wichita*

Association of valvular disease of the right side of the heart with metastatic carcinoid tumors has been recognized since 1954<sup>14</sup> and is now referred to as the carcinoid syndrome. The syndrome has been found only in patients with extensive metastases to lymph nodes, liver, and other organs. Clinically patients with this condition have vasomotor disorders, hyperperistalsis, and bouts of dyspnea, and it was suggested by Thorson and associates<sup>14</sup> that some endogenous substance liberated from the tumor into the blood stream, probably 5-hydroxytryptamine (serotonin) was responsible for these symptoms and signs. The

concept of functioning activity of these tumors became fully realized after Lembeck<sup>6</sup> isolated 5-hydroxytryptamine (5-HT), a pharmacodynamic compound, from metastatic carcinoid tumors.

Serotonin is a derivative of tryptophan (Figure 1) and has been shown to be similar to, if not identical to, enteramine produced by argentaffin cells of the gastrointestinal tract. Normally it is present in the blood, platelets, central nervous system (hypothalamus, thalamus and gray matter of spinal cord), tissue mast cells, spleen and urine.<sup>10</sup> Normally the blood contains 0.1 to 0.3 micrograms per ml. of serotonin (mostly absorbed on platelets), but values range from 0.5 to 2.7 micrograms per ml. in patients with functioning carcinoid tumors.<sup>8</sup>

From the Department of Laboratories, Wesley Hospital, Wichita.

### Serotonin (Origin and degradation)

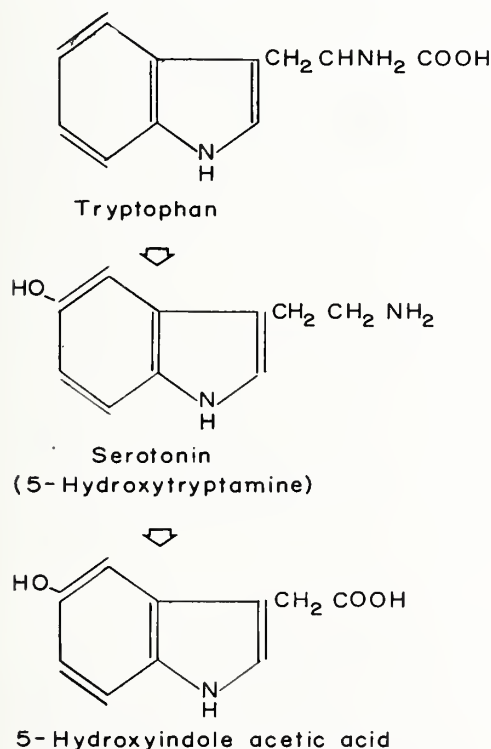


Figure 1

**Carcinoid syndrome is a relatively recent concept and represents one of the few neoplastic tumors capable of causing dramatic systemic reaction by release of a pharmacodynamic compound. The release of serotonin by these tumors enables their discovery by a chemical test which again is unique for neoplastic disease. Antimetabolites of serotonin, particularly chlorpromazine, are being actively investigated for their ability to neutralize the effect of serotonin and thereby afford therapeutic benefit to persons with carcinoid tumors.**

Serotonin is converted to 5-hydroxyindoleacetic acid (5-HIAA) by enzymatic deamination and oxidation in the liver and lungs, and the metabolite, 5-HIAA, is excreted in the urine.<sup>10</sup> Normally 2 to 9 mg. of 5-HIAA are excreted in the urine per day compared to 52 to 580 mg. per day in patients with functioning carcinoid tumors.<sup>8</sup>

Hyperserotonemia found in the carcinoid syndrome is responsible for exaggerated physiologic responses of skin capillaries, pulmonary arterioles, and smooth muscle of the gastrointestinal tract and bronchioles. Serotonin is believed to be directly or indirectly in-

volved in the pathogenesis of the valvular lesions of the heart in the carcinoid syndrome.

### Clinical Findings

Clinically a patient with functioning carcinoid tumors has symptoms and findings related to gastrointestinal system, skin, heart, and metabolic alterations.<sup>8</sup>

The most striking disturbance of the gastrointestinal system is intermittent abdominal cramps associated with bouts of watery diarrhea.

Skin changes are characteristic and are manifest by periodic flushing of the skin of the face and neck but may also involve other areas. In some patients telangiectasias are found on the face. The flush may last for days or may be fleeting, and it is often followed by cyanosis.

According to Thorson,<sup>13</sup> who studied flushing skin changes in four patients with carcinoid syndrome, there are three phases of the flush phenomena. During the first phase, he found cardiac sounds, murmurs, contractions, and ballistocardiographic waves diminished. When vasodilatation was complete the above findings increased considerably and tachycardia was common, but slight bradycardia occasionally occurred. In this second phase the systolic blood pressure frequently rose, and hyperpnea developed. In the third (cyanotic) phase the cardiac sounds, murmurs, contractions, and ballistic amplitudes again decreased, the diastolic brachial pressure sometimes rose markedly, and the radial pulse became impalpable. Hypopnea and bradypnea were sometimes observed. After regression findings returned to the pre-flush state. Episodes of flushing occur spontaneously but have been described after emotional stress, bowel movement, abdominal and pelvic examination,<sup>8</sup> and palpation of a metastatic carcinoid to the testes.<sup>5</sup> Liberation of histamine by serotonin may be part of the mechanism of the cutaneous flush.<sup>9</sup>

Symptoms and findings referable to the heart are progressive dyspnea with later development of pedal edema, congestion of liver, pleural effusion, and ascites. The majority of patients have normal blood pressure. Signs of congestive failure are results of pulmonary stenosis and insufficiency of the tricuspid valve. Systolic and diastolic murmurs are present over the right side of the heart. Clinical asthma and frank psychotic episodes have been infrequently observed and possibly are related to effects of serotonin.<sup>8</sup>

Metabolic alterations are related to the precursor of serotonin, tryptophan, which is also the precursor of nicotinic acid (niacin).<sup>10</sup> In carcinoid patients approximately 60 per cent of dietary tryptophan is converted to 5-HIAA; normally only 1 per cent of

dietary tryptophan is converted to 5-HIAA.<sup>8</sup> It then becomes apparent that less of the dietary tryptophan in patients with carcinoid syndrome is available for formation of niacin and protein, leading to deficiency states. Mild pellagra has been observed in carcinoid syndrome.<sup>9</sup>

### Pathologic Physiology

The clinical features of the carcinoid syndrome, excepting cardiovascular symptoms and valvular lesions, have been produced in man or experimental animals by parenteral administration of serotonin. Intravenous or subcutaneous injections into dogs of natural or synthetic serotonin result in three phases that are quite variable.<sup>10</sup> Initially the arterial pressure falls quickly and bradycardia is followed immediately by the second phase, a sustained pressor response succeeded in turn by the last phase, a prolonged depressor response of lesser magnitude than the pressor response. The pressor phase depends in part on vasoconstriction.<sup>10</sup>

The initial phase is believed to be caused either by transient ganglionic blocking action or pulmonary vasoconstriction with pooling of blood in the right side of the heart. Pulmonary vasoconstriction following injection of serotonin is a consistent response.<sup>10</sup> The flushing phenomena has been demonstrated in man following serotonin infusion.<sup>8</sup> Diarrhea, strong intestinal contractions, profound weight loss and finally death develop in the experimental animal after prolonged administration of serotonin, but valvular damage or lesions of the heart have not been observed.

Serotonin is antagonized by lysergic acid diethylamide, yohimbine, and ergotamine.<sup>10</sup> Chlorpromazine has also been reported to be antagonistic to serotonin<sup>3</sup> and is apparently of therapeutic benefit in alleviation of symptoms of the carcinoid syndrome.<sup>4, 12</sup> The efficacy of chlorpromazine is not clearly understood and its action may be unrelated to its reported interaction with serotonin.<sup>12</sup> Reserpine and 1-benzl-2-methyl-5-methoxy tryptamine (BHS), a benzl analog of serotonin, are also antagonistic to serotonin,<sup>17</sup> and it is apparent that a host of structurally related compounds are antimetabolic to serotonin. Drugs of this same class have interestingly enough found wide application in the treatment and study of mental diseases.

### Pathology and Pathogenesis of Heart Lesions

In a review of 58 cases of the carcinoid syndrome, MacDonald<sup>7</sup> found that in most the valvular lesions were limited to the pulmonic and tricuspid valves. In general the valves were stenotic, had increased vascu-

larity of cusps, and were covered by collagenous and hyaline tissue. MacDonald compared the histochemical and pathologic findings of the hearts in 44 cases of carcinoid syndrome with normal hearts and hearts damaged by rheumatic fever, lupus erythematosus, periarteritis, congenital pulmonic stenosis, and scleroderma. The valvular lesions of the carcinoid syndrome were distinctive and characterized by fibrous tissue devoid of elastic fibers upon a relatively intact endocardium and the presence of many mast cells in the valvular endocardium. In one case histologic evidence of mitral damage was found and consisted of mast cell infiltration.

The pathogenesis of cardiovascular lesions in the carcinoid syndrome is not fully understood. Two theories have been proposed.<sup>9</sup> The valvular lesions and endocardial fibrosis of the right ventricle may be caused by direct action of serotonin by unknown processes before it is converted to 5-HIAA in the lungs. In support of this concept is the fact that the mitral and aortic valves are with few exceptions unaffected and presumably would be affected only when 5-HT had direct access to the left ventricle before it became inactivated in the lungs. Involvement of all four valves of the heart has been reported in a case of carcinoid syndrome with patent foreman ovale by McKusick<sup>9</sup> and that report is in agreement with these views.

Another possible explanation, advanced by Thorson,<sup>13</sup> is that the altered dynamics of the heart during cutaneous flushes may damage the endocardium and valves of the right ventricle by stretching. He believes the stretching of the right ventricle by the rapid change in stroke volume and cardiac output occurring during the cutaneous flushes is sufficient to injure valves and endocardium.

## Diagnosis

Diagnosis is not difficult when the full syndrome is present; however, in some patients only one of the signs or symptoms may be noted during the initial phase of the syndrome. The condition should be considered in the differential diagnosis in patients having any one or all of the following: bouts of diarrhea, cutaneous flushes, intermittent abdominal cramps, and clinical evidence of valvular heart disease.

A screening test for 5-HIAA in urine has been developed<sup>11</sup> and is exceedingly simple, rapid and reliable for amounts greater than 30 mg. per day. The chemical reaction of this test is specific for 5-hydroxyindoles and a quantitative test based on the same reaction has been developed.<sup>15</sup> The possibility that exogenous substances might give a false positive reaction was not realized until Anderson<sup>1</sup> found that monkeys

fed bananas excreted excessive amounts of 5-HIAA. Waalkes and associates<sup>16</sup> demonstrated that bananas contain serotonin, noradrenalin, and related amines. Ingestions of bananas therefore may lead to erroneous chemical diagnosis of carcinoid tumors and pheochromocytomas. Bananas therefore should be eliminated from the diet of persons who are being studied for excretion of serotonin derivatives and catecholamines.

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## PRESIDENT'S PAGE

DEAR DOCTOR:

There are many ways to evaluate a life span, and occasionally history keeps the spotlight of fame turned upon a name indefinitely. For most of us, however, the criteria of value of our own lives rest with our friends, and most of all with ourselves. Life is for each of us a definite (though fortunately unknown) number of days. And to the extent that these are good days, the life has been worth living. Occasionally great adversity sees the development of new strength and courage, and moral stature. But most of the days, for most of us, are less dramatic. However, we of the medical profession enjoy a sense of importance in the work we are doing that gives meaning and value to most of our days, such as few men in other walks of life ever know.

We have come again to the golden days of autumn, and the beginning of another school year. Already the professional meetings are being resumed. We in Kansas are especially fortunate in the leadership of the university in providing postgraduate medical training that is outstanding across the nation. The response of the physicians of Kansas to this and other educational opportunities has been most gratifying. The direct beneficiary is the patient. But the physician finds his reward in a renewed sense of strength and confidence and pride in himself that probably makes for more good days in his life than he can know from any other source.

*Fraternally,*

A handwritten signature in cursive script that reads "Thomas P. Butcher M.D.". The signature is fluid and elegant, with a large, sweeping initial 'T'.

*President*

## EDITORIAL COMMENT

### Radiological Safety

*Editor's Note. The JOURNAL welcomes the opportunity of publishing the following editorial written by Dr. G. R. Germann as chairman of the Public Health Committee of the Kansas Radiological Society. Dr. Germann is a radiologist at the University of Kansas Medical Center.*

During the past few years a great deal has been written and said concerning radiological exposure, its dangers, and its safeguards. Much of this material has been based on excellent experimental work and leaves little doubt of its validity. However, much has appeared in the lay press which has been stated so casually and sparing of fact that it has led only to confusion of both the lay public and the medical profession. It is the role of the physician using radiation sources to allay any hysteria which may result in his patients or colleagues, and yet it is also his obligation to both teach and protect these patients and colleagues to the peak of his ability. No one should minimize the potency of this tool.

It should be the ambition of every user of radiological energy to improve the quality of his work continuously and to decrease the population exposure to radiation material progressively. It seems safe to estimate that the medical exposure of the population could be safely reduced in half by merely applying known rules and principles to radiation exposure. This could actually be done without decreasing the number of medical examinations done.

These rules and principles are not complicated. They are not limited to specialists in the field of radiology. Actually radiologists make up only approximately 5 per cent of the users of x-ray or gamma radiation. The following general rules may be of value to you as a user of radiation sources, particularly in diagnostic work.

1. The exposure should be a premeditated one. The technician should know exactly what areas should be radiographed and have a technique chart which is accurate. This is to eliminate useless exposure and particularly repeat exposures.

2. In diagnostic x-ray, dark room technique must be followed meticulously. Far more films are ruined in the dark room than at the exposure table. This technique varies somewhat with chemicals used, but each type of chemical clearly defines its prescribed technique.

3. Radiation exposure must be limited to the desired area radiographed. This implies use of accurate coning or shielding devices.

4. All x-ray and fluoroscopic units should be filtered with at least two millimeters of aluminum for diagnostic work, and the highest K V practical for good quality films should be used.

5. Patients should always be adequately prepared for examinations so that maximum information can be secured from a single radiographic study.

6. All x-ray units, particularly fluoroscopic units, should be calibrated so that the user will actually know the output of this machine. A minimum amount of time and viewing should be done through a port of minimal size.

The above rules are for the most part self explanatory. Many other detailed instructions could be listed. No attempt is made here to suggest the limitation of the use of radiological tools in diagnostic usage. However, it is well for each physician to review in his own mind the indications for radiological exposure in reference to himself and to his patient. This is particularly true of patients in the pediatric period.

There are many devices and accessories which are available to users of radiological tools to reduce exposure to patients and to themselves. All merit serious consideration. However, it must be remembered there is no substitute for the skill and the experience of the user.

### Medicare

*Editor's Note: Following is the text of a letter written recently to members of the Kansas Medical Society by Dr. Thomas P. Butcher, president.*

Medicare in Kansas has recently undergone two major revisions. The first, described on the President's Page in the August issue of the JOURNAL, has to do with the Kansas contract and came about in the course of annual contract negotiations on July 10 and 11 when Dr. Peters, Mr. Ebel, and your president went to Washington. At that time we were impressed by the evident desire and intent of the government to pay a doctor's regular fee (based on \$4,500 per year income) for his services to dependents of military personnel. The Contracting Officer felt that, upon occasion, attempts had been made by some doctors to overcharge either directly, by raising fees, or to over-treat. He admitted, however, that the action of the Kansas Review Committee had, for the most part, effectively controlled this problem. It was recognized that fees are not uniform, hence the problem of paying regular fees without having all fees raised to the maximum. It was further recognized that a "fee schedule" does make fees uniform.

At this point we suggested that Kansas go on a no-fee-schedule basis, wherein each doctor would

charge exactly his regular fee. The government representatives liked this idea and were inclined to favor it. However, they pointed out, Congress would not permit a contract without ceilings. It was then decided that a ceiling would be established (which would not be published) and that each doctor would be asked to make his usual charge, and payments would be made up to the ceiling. Then, if special circumstances warrant, even the ceiling may be exceeded by agreement of the Contracting Officer. The old Medicare Fee Schedule is cancelled and should be discarded. On this we have agreed.

The plan should be effective so long as it is not abused. Just what constitutes a doctor's customary fee in any given instance is usually a matter of record in the reports he has made in the past in his Blue Shield claims. Reasonable differences of opinion the Review Committee should be able to handle. More difficult problems will be referred to the Contracting Officer in Washington as in the past.

We feel pleased about this new contract. We believe the integrity of the physicians of Kansas will make this a workable program that is not abused. However, the government insisted that both parties have the right to review the program at the end of each two months, with continuation of the contract only if it then appears satisfactory both to them and to us.

The second major revision came at the hands of Congress a very few days ago in substantially curtailing Medicare appropriations for the coming year.

Congress has been advised, through figures which are not available to us, that medical care in armed forces facilities is less costly than when purchased from civilian sources. We are convinced that a decided shift in usage and a rise in the cost of civilian care have continued since the program began. The increased use of assistants and of consultant services may also be seen with appalling clarity.

We wish to disagree with the opinion that the armed forces can supply care more economically than is available through civilian sources. Perhaps we could prove that point, but the sharply rising charges by civilian doctors cannot be disputed. Neither can one argue against the fact that there are 5,000 vacant hospital beds in various armed forces facilities. So Congress drastically curtailed the Medicare program by reducing appropriations. Medicare is, therefore, forced to retrench. Several new rules have been adopted as a means for effecting this saving. The following will affect the physician:

1. *Not eligible* for civilian care, unless specifically authorized by the base commander, are dependents living with their sponsor at or near an established armed forces medical facility.

2. *Not eligible* in the future will be any patient for surgical procedures which in the opinion of the surgeon may be postponed or classified as elective. NOTE: This repeals a previous definition of the word "elective."

3. *Not eligible* in the future will be home or office care for accidents. Only those treated in a hospital may be paid under Medicare.

4. However, any dependent visiting away from her home or on a trip, is eligible for civilian care during such time. We understand this will include the situation of an obstetrical patient who temporarily leaves the home of her sponsor to be delivered in another city. It will not be necessary for her to obtain prior authorization even though there is a military hospital in the area where she is visiting.

What the above amounts to in Kansas is a sharp reduction in cases from areas around Olathe, Leavenworth, Wichita, Topeka, Salina and other places where armed forces hospital facilities exist. Medicare cases in the future will be virtually limited to the treatment of dependents residing with parents or relatives while the sponsor is on active duty and stationed elsewhere.

This situation can change again. The armed forces hospitals may be filled, or dependents may disapprove of government medicine, or Congress may relax its purse strings. But for the present the above prevails.

Therefore, as we see it now, there is a direct relationship between parts one and two of this letter. It now appears that doctors should conscientiously try to recover from the unfavorable position in which they have been placed. Your president does not like socialized medicine or medicine under government control any more than you do.

It seems that the government should recognize an obligation to private enterprise which is violated when the government absorbs into its own facilities increasing segments of civilians, whether they be dependents of servicemen or veterans with non-service connected disabilities.

When your patients resent a condition that limits their choice of health care they should express their opinions to elected officials, to their congressmen and senators. This is an important step in the public responsibility of retaining free enterprise and is entirely in keeping within the meaning of democracy.

At this moment, however, the government finds it advantageous to provide care. That is socialized medicine. If civilian doctors co-operate under the policy outlined in Section I, it appears that free enterprise can still be salvaged. There can be a return to a system of contract practice where the government purchases care and the patient retains his freedom to choose the physician he wants. The physician retains



his right to charge what he believes is in keeping with the worth of his service and his patient's ability to pay.

If every Kansas doctor will help in this experiment, it may spare him a great problem in the future. Your co-operation will be of service to your Society as well as to yourself and will be appreciated.

### Basic Science Examinations

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology, and physiology on November 24 and 25, 1958, in the Auditorium of Wahl Hall, University of Kansas Medical Center, Kansas City. Satisfactorily completed applications for examination must be submitted at least 30 days prior to the examination. Application blanks and other information can be obtained from L. C. Heckert, secretary of the Kansas Board of Basic Science Examiners, Pittsburgh.

### Oklahoma City Clinical Conference

The 28th annual three-day conference of the Oklahoma City Clinical Society will open at the Biltmore Hotel on October 27. Fifteen guest speakers from medical and teaching centers throughout the nation will present lectures and discussions. In addition to general assemblies there will be specialty lectures, a clinicopathological conference, and daily luncheon round-table question and answer sessions.

Entertainment will include a banquet on Monday evening with Dr. Russell B. Roth as speaker, a social hour and nine specialty group dinners on Tuesday evening, and a dinner-dance on Wednesday evening.

All physicians who are members of county medical societies are invited to attend. The conference is approved for credit under Category I by the American Academy of General Practice.

### Institute on Schizophrenia

A study of chronic schizophrenia and hospital treatment programs will be conducted at the Osawatomie State Hospital, Osawatomie, October 1-3, under a grant from the National Institute of Mental Health and Smith, Kline and French Laboratories. The meeting is designed to define practical treatment in mental hospitals, to promote new ideas and research, and to hear divergent points of view on schizophrenia.

There will be individual and panel discussions on

psychoanalytic ideas, communication theory, the viewpoint of social psychiatry, "intrusion" theory, the biological standpoint, and large scale hospital programming.

Included as speakers are: Dr. Karl Menninger, Dr. N. Apter, Mr. Gregory Bateson, Dr. John Cumming, Dr. Austin Des Lauriers, Dr. Jordan Scher, Dr. Otto Will, Jr., Dr. Bruno Minz, Dr. L. von Bartelanffy, Dr. H. G. van der Waal, Dr. I. Clancey, Dr. Elmer Galioni, Dr. S. K. Weinberg, Dr. Martin Scheerer. There will be no registration fee, but attendance will be limited.

### Clinical Conference in Kansas City

The 36th annual fall conference of the Kansas City Southwest Clinical Society will be held in the Municipal Auditorium, Kansas City, Missouri, September 22-25. Fifteen nationally known speakers will present programs, and a special feature will be a premiere telecast from Bethesda Naval Hospital and Washington, D. C. Postgraduate breakfast seminars will be held daily, and diversified round-table luncheon discussions will be on the schedule for September 23.

Complete programs may be obtained from the Society, 3036 Gillham Road, Kansas City 8, Missouri.

### K.U. Medical Alumni Meeting

A banquet for members of the K.U. Medical Alumni Association and their wives will be held at the President Hotel, Kansas City, Missouri, on Wednesday evening, September 24, during the conference of the Kansas City Southwest Clinical Society. A cocktail hour at 6:30 will precede the dinner.

### Changes of Department Chairmen

Two physicians retired as department heads at the University of Kansas Medical Center on July 1 and two other physicians were appointed in their places.

Resigning as chairman of the Department of Psychiatry but remaining on the staff as full professor is Dr. William F. Roth, Jr. Newly appointed as chairman of the department is Dr. Donald C. Greaves, who has been an associate professor at the University of Oklahoma School of Medicine since 1955.

Dr. Lee H. Leger, who resigned as director of clinical laboratories and head of the Department of Clinical Pathology, was succeeded by Dr. Russell J. Eilers, assistant professor of pathology and oncology, who joined the Kansas staff in July of 1957.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

The civilian Medicare program is struggling through an uncomfortable period of readjustment while attempting to cut its costs by about 30 per cent.

Had the program continued the way it was operating last year, the cost this year would be an estimated \$100 million. Instead, the Defense Department, on the urging of Congress, is attempting to keep costs within the appropriated \$70.2 million.

No one can estimate as yet actually what is being saved. Some services that previously were authorized in civilian hospitals and from civilian doctors have been eliminated, thus shifting these costs from the government to the service families. At the same time many dependents who had been cared for outside the military now are required to go to service hospitals.

If they don't like what is happening, there is not much the Medicare administrators, the doctors, and the hospitals can do about it, at least not until the new Congress meets next January. Then, if the situation is out of hand and there is widespread discontent among service families, the problem could be returned to the lap of Congress.

Awkward as are the restrictions in some areas, the situation could have been much worse. The House originally proposed only \$60 million for the civilian program, and ordered the Defense Department not to exceed that figure. In the Senate, Senator Knowland (R., Calif.) sponsored an amendment increasing the total to \$70.2 million, and lifting the ceiling on spending. The Knowland proposal was approved.

The conference committee accepted the Senate changes but in its report on the bill instructed the department to stay within the \$70.2 million. This the department is attempting to do, but if the figure has to be exceeded for good reasons, the department would have to shift funds or ask for a supplemental appropriation and explain the need.

If the ceiling had been kept in the bill itself, the department couldn't have spent a penny more than the \$60 million.

Here are the major restrictions, as outlined by the department to a meeting of Medicare contractor representatives:

- Dependents living with their sponsors to use military facilities, unless the military authorities certify that civilian care is necessary because service facilities

are not available. Dependents not living with sponsors to have freedom of choice of military or civilian medicine, as now.

- In maternity cases, if the patients are living apart from sponsors, they will continue to have freedom of choice. If living with sponsors, new patients or those in the first trimester must use service facilities if available. Those in the second and third trimesters, if under civilian care October 1, may continue, but if for any reason they change doctors, military facilities must be used if available.

- The new regulations also discontinue all services "not clearly specified in the law" for all dependents. The eliminated services include medical care ordinarily rendered on an outpatient basis, acute emotional disorders, and elective surgery. Emergency care may be obtained from civilian sources without prior authorization.

- Where more than one service facility is located in the area, a military clearing house will screen dependents and hospitals to insure that all service hospitals are used "to the optimum."

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Congress has received much advice on what to do about the hospitalization of veterans now and in the years ahead. Everybody seems to agree that 20 to 30 years from now will see a sharp increase in the number of non-service-connected disabilities among the veteran population. The question then is how many of these cases should be taken care of by the federal government.

During hearings by the House Veterans Affairs Committee, Dr. Russell B. Roth, chairman of the American Medical Association Committee on Federal Medical Services, reiterated the A.M.A. stand that service-connected cases should receive best care possible in VA facilities and that non-service-connected illness should be the responsibility of state and local governments, if the veteran is unable to pay for his care.

Before adjourning, the House Committee introduced a bill that did little to clear up the issue of non-service-connected care. It was aimed rather at the Budget Bureau in an effort to assure that some 5,000 beds now closed because of "administrative decisions" would be placed in use—presumably for non-service-connected cases.

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Under a Senate resolution, a statue of the late Dr. Florence Rena Sabin, who was noted for her research in the lymphatic system and tuberculosis, would be placed in the Capitol's Statuary Hall, as one of Colorado's distinguished citizens. Each state is allowed two such statues.

## Immunologic Paralysis

Antigen-antibody combination leads to the release of a mediator substance. Histamine is such a product of this complex although there undoubtedly are others: possibly serotonin and alpha 1 globulin for example. Release of the mediator is accomplished, at least in some instances, only in the presence of complement. In the latter situations, if the complement is destroyed or interfered with by the use of an esterase inhibitor, no hypersensitivity phenomena are observed.

On purely speculative grounds it might be imagined that the production of antibody could be slow enough to cause antigen-antibody complex formation at such a slow rate that the resulting chemical or enzyme substance liberation can be physiologically controlled by the organism. Recent investigation by the use of radioactive labelling techniques revealed that the polysaccharide antigens may persist in animals for a period longer than a year, and that during this time the antibody to that polysaccharide was being constantly removed by the persisting antigen. This then does represent "immunologic paralysis" or unresponsiveness in the case of this specific antigen, for the introduction of more antigen is incapable of stimulating a further antibody response.

It is quite possible that the gradual breakdown or degrading of the antigen-antibody complex may release constantly a fraction of the antigen factor for re-union with freshly produced antibody substance, thus perpetuating the reaction as well as holding in combination all antibody manufactured by the host. It may be that this is the explanation for the state of immunologic paralysis in the case of protein antigens which do not persist as long. Certainly it has been known that large doses of antigen may suppress antibody formation altogether. More recently it has been shown that the heterologous antigens may be so competitive in action that one may stimulate alone all antibody formation—to the point of virtual exclusion of other antibodies.

These concepts have a practical application. Inasmuch as there can likely be antigen competition in the patient, one should carefully appraise the requirements in order that the use of non-essential antigens can be avoided. The indiscriminate inclusion of this or that antigen in the mixture is to be condemned. Ordinarily it is possible to avoid feathers—probably not too difficult to avoid dog hair—goldenrod pollen—Bermuda grass pollen in certain localities—etc., so that even if the patient has a positive test to these antigens with the Prausnitz-Kustner procedure they may be excluded from the injected mixture. By their inclusion one may actually diminish the antibody production to the house dust, mold, and ragweed antigens from which the patient is really reacting symptomwise. The end result is frequently a decreasing tolerance to the injections and less relief from the allergic state. In multiple allergy states it is perhaps difficult to avoid some of the competition among antigens, but one must be as diligent as possible in their selection.

Prepared by the Committee on Child Welfare of the Kansas Medical Society.



## Maternal Death Study—Case History

The patient was a 26-year-old para 2, gravida 3 whose weight was unknown but had long been in excess of 300 pounds. Medical history other than obstetric was not significant, but her first pregnancy terminated at seven months with an induced labor because of eclampsia, the premature infant surviving four days. The second, two years prior to the final one, was complicated by the presence of a duodenal ulcer and possible gallbladder trouble and ended at eight months with non-convulsive toxemia and delivery of a stillborn infant (dead one week prior to delivery).

The patient died of eclampsia in the seventh month. There was no autopsy or staff review. She was thought to be four months pregnant at the time of her first visit to the physician, but the examination was admittedly indeterminate because of the obesity. Urinalysis was normal and blood pressure was 144/84. Dietary advice and supplements were given but were thought not to have been followed. No blood work was done. The patient made three prenatal visits, choosing her own time rather than the assigned appointment time. Weight gain was not determined, but the blood pressure remained at the initial level and there were no apparent complications. She failed to keep appointments for two months prior to death.

Approximately two months before term, she was admitted to the hospital in suspected labor but dismissed without blood pressure determination or urinalysis when contractions ceased. She was readmitted five days later in general discomfort which she interpreted as labor, and she also complained of headache. Blood pressure was 210/140, pulse was 100, and respirations 28. Fetal heart tones were not definitely heard and the cervix was closed and uneffaced. The baby was thought to be small but its position was uncertain. She was sedated with Demerol. A urine specimen was not obtained.

Three hours after admission, she had a convulsion. The attending physician and a consultant (general practitioner-surgeon) saw her, and she was treated vigorously with oxygen, Sodium Luminal, paraldehyde, and magnesium sulfate. She was considered in critical condition, and no intervention with the pregnancy was considered warranted. Intravenous injection of a veratrum compound was initiated but the patient died in a convulsion two hours after the first one.

**COMMITTEE OPINION:** This was considered to be a fulminating eclampsia as indicated by the attending physician and demonstrates the treacherous character of this disease. The obstetric history should have placed this patient under constant suspicion as a potential toxemic. It is unfortunate that the blood pressure and urine were not checked on the first hospital admission for they may have indicated some activation of the toxic process at that time. Blood pressure of 210/140 on her final admission should have been the signal for immediate and intensive treatment. The frustration of a physician dealing with a patient who fails to cooperate was given due consideration. The committee felt it had no alternative but to re-emphasize that the earliest signs of toxemia demand immediate and adequate therapy and, further, that the physician cannot reject the obligation, no matter how undesirable, of pressing the best possible care upon the uncooperative patient.

**CLASSIFICATION:** Obstetric death, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

## PHYSICIANS' ACTIVITIES

**Dr. Charles A. Hunter, Jr.**, associate professor of obstetrics and gynecology at the University of Kansas Medical Center, has resigned that position to join the staff of the University of Indiana Medical Center in Indianapolis.

Two Kansans, **Dr. Antoni M. Diehl** of Kansas City and **Dr. Wayne L. Fowler** of Concordia, were awarded certificates of fellowship in the American College of Chest Physicians recently.

**Dr. Ralph N. Sumner**, a graduate of the University of Kansas School of Medicine who recently completed internship at Bethany Hospital, Kansas City, has opened an office in Fredonia.

An article by **Dr. E. Grey Dimond** of the Cardiovascular Laboratory, University of Kansas Medical Center, was published in the July 26 issue of the *Journal of the American Medical Association*. The title was "Transistor for Transmission of Electrocardiograms by Telephone."

**Dr. Elmer D. Peffley**, who has been practicing in Chetopa since December, 1956, closed his office there last month and has not yet announced plans for his new location.

Representing the Kansas Medical Society as speakers at an educational course for medical assistants held at the University of Kansas, Lawrence, in August were **Dr. Thomas P. Butcher** of Emporia, speaking on "Religion and Medicine"; **Dr. William J. Reals** of Wichita, who discussed ethics, and **Mr. Oliver E. Ebel**, executive secretary of the Society, who spoke on legislation.

Two Pittsburg physicians who serve as team doctors for the Pittsburg State Teachers' College, **Dr. John G. Esch** and **Dr. George Pogson**, presented discussions on "The Team Physician and Athletic Injuries" at the annual high school coaches' clinic held at the college recently.

**Dr. Guy E. Finkle**, McPherson, announces that **Dr. W. J. Collier**, a diplomate of the American Board of Surgery, is now associated with him in practice. Dr. Collier has been assistant chief surgeon at the Veterans Administration Hospital in Wichita.

The Gelvin-Haughey Clinic, Concordia, announces that **Dr. Robert L. Rogers** is now a member of its staff, specializing in obstetrics. He was graduated from the University of Kansas School of Medicine in 1955, served his internship at Minneapolis General Hospital, and then served with the armed forces in Germany until June of this year.

**Dr. Eldred V. Thiehoff**, of the University of Kansas Medical Center, spent a month touring South America during the past summer to observe methods of teaching public health and preventive medicine on that continent.

A new physician in Manhattan is **Dr. George S. Bascom**, son of **Dr. K. F. Bascom**, also of Manhattan. The young man was graduated from Harvard School of Medicine, served his internship at Grace New Haven Community Hospital, was a research fellow in surgery at Massachusetts General Hospital for a year, and has had three years of surgical residency at Grace New Haven Community Hospital.

**Dr. Jess W. Koons** and **Dr. Jack D. Reese**, who recently completed internships at Wesley Hospital, Wichita, have announced the opening of an office for general practice in Liberal.

Physicians in Shawnee County sponsored their third "Polio Dollar Day" in Topeka on August 7 and gave 3,700 shots.

**Dr. Robert A. Reinhardt**, Glen Elder physician for the past 43 years, has announced his retirement from active practice.

**Dr. Thomas P. Butcher**, Emporia, president of the Kansas Medical Society, spoke on "The Physician Views the Hospital" at a workshop for hospital administrators at the University of Kansas in August.

**Dr. Henry S. Haerle**, Marysville physician now on active duty with the Army, has been promoted from captain to major. For some time he served in the Pacific Area and was transferred in July to Ellington Air Force Base in Texas.

Speaker at a recent meeting of the Rotary Club in Ottawa was **Dr. J. E. Wallen**, who related interesting experiences in his 26 years of practice.

**Dr. Glen Floyd**, ophthalmologist at the Snyder Clinic in Winfield since 1947, has announced plans to move to Bartlesville, Oklahoma, this month and will engage in practice there.

**Dr. Paul H. Lorhan**, of the University of Kansas Medical Center, spoke on "Antiemetics for the Control of Postoperative Nausea and Vomiting Following Cataract Surgery" before the Section of Anesthesiology of the American Medical Association at its meeting in San Francisco recently.

A psychiatrist, **Dr. B. S. Lacy, Jr.**, assumed his duties as medical director of the Riley County Mental Health Center on September 1, succeeding **Dr. Howard V. Williams, Jr.** Dr. Lacy, a diplomate of the American Board of Psychiatry, has been on the staff of the Topeka State Hospital during the past eight years.

**Dr. Loren Augustyn**, a 1954 graduate of Creighton University School of Medicine, has opened an office in Colby. He served his internship at Creighton Memorial St. Joseph Hospital, had a surgical residency at Creighton also, and since 1955 has been in the Air Force.

A physician who recently finished internship at Wesley Hospital, Wichita, **Dr. John Fred Doornbos**, became associated with the El Dorado Clinic on August 1.

**Dr. Arthur W. Hoyt**, who practiced pediatrics in Oklahoma for five years and who served as clinical instructor in pediatrics at Wayne University Medical School, Detroit, before beginning a three-year residency at the Menninger School of Psychiatry in Topeka, has become medical director of the recently

merged Family Service and Guidance Center, Topeka. He succeeds **Dr. Robert B. Forman**, who has joined the Menninger Foundation staff as psychiatrist in the out-patient department.

**Dr. Frank A. Trump**, Ottawa, is one of two men honored recently by Ottawa University. He was awarded a bronze plaque for "long medical service in the community and for the establishment of the university student health service."

**Dr. Charles W. Graham**, radiologist, is now located at St. Thomas Hospital in Colby. Since his graduation from the Nebraska College of Medicine in 1949, he has had four years' training in radiology at the State University of Iowa and has served in the Army in the Korean conflict.

**Dr. Albert N. Lemoine, Jr.**, of the University of Kansas Medical Center, spoke on "Surgical and Applied Anatomy of the Globe and Orbit" at the Lancaster Course, Waterville, Maine, in July. At the same course **Dr. Larry L. Calkins** spoke on "Ophthalmic Pathology."

### Study of Nursing Homes

A field survey of approximately 25 skilled nursing homes in various sections of the country is being conducted by the A.M.A.'s Council on Medical Service. Primary purpose of visits to these public, proprietary, and non-profit facilities will be to obtain data that will aid in developing recommended guides and standards governing medical care in nursing homes. It is expected that much valuable information will be gathered on other important phases of nursing home operation—including nursing care, social service, food service, staffing and personnel policies, and costs. Tentative plans call for publishing the results of the survey, along with suggested standards for medical care and supervision, this fall.

This field study is one of the activities which has grown out of meetings of the liaison committee of the American Medical Association and the American Nursing Home Association. Other problems currently under the committee's consideration are the adequacy of welfare payments for nursing home care, ways of financing new and improved nursing home facilities, and stimulation of better working relationship between nursing homes and physicians at both the state and local levels.



## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### HOW MANY DOCTORS ARE ENOUGH?

The National Fund for Medical Education, which is trying to raise money for medical schools, recently tackled the question of "How many doctors are enough?"

The Fund pointed out that today's doctor can serve more patients than the doctor of a generation ago. He can cover more territory and his office is accessible to people in a wider radius.

More people see the doctor in his office, rather than having him come to their homes.

Also, drugs and other therapeutic aids undreamed of 20—or even 10—years ago are a great time-saver for the doctor. A case of pneumonia, for example, once required 11 hours of a doctor's attention. Now it requires about an hour and a half, the Fund points out.

But, there is another side to it, says the Fund.

There is more for the doctor to do. For people see the doctor more frequently; regular checkups are common; people don't wait as long as they once did before calling the doctor when pain strikes.

Also, doctors are employed today in industrial plants, schools, health departments and many other places where formerly medical attention was not available.

But the overriding factor is that our population is increasing rapidly. New medical schools in operation or in prospect can bring the rate of increase of doctors up 3,500 a year. But that is only two-thirds of the need if by 1975 we are to maintain even the present ratio of one doctor to 730 persons.

So if you have found your doctor so busy he scarcely has time for you, there is informed backing for your impression that there aren't enough doctors. Providing the tremendous amount of money needed for new facilities to right the situation is something else again.—*Wichita Eagle, June 18, 1958.*

### FAMILY DOCTOR KEY FIGURE

There are many specialists in the field of medicine today, but the old family doctor still remains a key figure in modern medical practice.

A survey by the National Opinion Research Center at the University of Chicago, shows that today the average family doctor is a man in his forties, a well-established general practitioner in private practice. He derives his income from fees treating some 26 patients a day, and spends over eight hours a day on home and office calls. He sees most of his patients in his office or at their homes, but usually has hospital staff privileges.

Dr. Paul Hawley, director of the American College of Surgeons, has said: "Every family needs a medical adviser upon which it can rely, whether or not such a need is recognized. The family physician is the only practitioner of medicine who can fill this role properly. He should be more than an adviser. He should be the medical manager; and, if he has earned the full confidence of the family, he will occupy such a position."

We think it is important that every family have one physician that it considers its family doctor. Such a relationship provides the family with good medical protection, and once the doctor has gained the confidence of the family, the doctor is in a position to be of more service.

Good medical care will always depend on how early during an illness a physician is consulted, and how readily his advice is accepted by those who ask for it.

A sound relationship between family and doctor is the key to good health.—*Coffeyville Daily Journal, June 27, 1958.*

### BORROW FOR BRAINS

It takes a long time and a lot of money for a young man to become a medical doctor.

But the University of Kansas School of Medicine reports that during the past five years not one student has dropped out of school because of financial needs.

Nor has any prospective acceptable student been denied admission to the school because of financial limitations.

This encouraging record has been made primarily because during this same five-year period, loans totaling nearly \$200,000 have been made to medical students from 29 separate loan funds at the school.

The students pay two per cent interest on the loans from the day they are granted. But they are not required to begin retiring the obligation until after completion of internship. In 20 years of experience only four loans have been written off as losses. These involved two men who died shortly after graduation and two who became totally disabled by illness.

The virtual absence of risk, together with the obvi-

ous need, should prompt a far more widespread use of loan funds to finance education. Scholarships are abundant for undergraduate study, and the tax support of institutions keeps the cost of basic education relatively low.

The great need for help is at the graduate school level, not only in medicine but in other fields as well, particularly in teaching. There is not an alarming shortage of people who are competent in their fields; the shortage is among men who are expert.

To be expert requires three or four years of study beyond college graduation and involves not only the high cost of the study itself, but the expense of the older student maintaining the family he is likely to have before his studies are completed.

Cattle are fattened, homes are built, businesses are expanded on borrowed money. The same formula should be extended more fully to the fattening and expanding of the mind.—*Hutchinson News*, June 8, 1958.

### Reorganization Plans for A.M.A.

A first step in the American Medical Association's broad reorganization plans was reviewed and approved by the Board of Trustees at a meeting held in Chicago in August. The purpose is to streamline the A.M.A. administrative set-up, without affecting relationships between standing committees and the Board of Trustees or the House of Delegates.

Six new divisions were established: Business, Law, Communications (professional and public relations), Field Service, Scientific Publications (editorial), and Council Administration. The last division is temporary, pending further study of the scientific and socioeconomic activities of the association.

Directors of the divisions are, respectively, Russell H. Clark, C. Joseph Stetler, Leo E. Brown, Aubrey Gates, Dr. Austin Smith, and Dr. Ernest B. Howard, assistant executive vice-president, who will administer the temporary division in addition to acting as deputy to Dr. F. J. L. Blasingame, general manager.

Important administrative realignments include: (1) transfer of *A.M.A. News* and *Today's Health* editorial functions to the Communications Division and (2) centralization of all advertising, circulation, and printing activities in the Business Division.

The over-all legislative program, including the Washington office, the Committee on Legislation, and related field activities, will be reviewed by a special committee of trustees and delegates appointed by the Board of Trustees. The existing organizational pat-

tern for legislative activities will be continued for the present.

### Popularity of Publications

Publications about children are the government's best sellers. A new tabulation by the Superintendent of Documents, Government Printing Office, Washington, shows that four of the first five best sellers are publications of the Children's Bureau.

Listed below are the titles of the ten most popular publications and the number of copies sold since date of issuance:

1. Infant Care, 10,823,652.
2. Prenatal Care, 5,517,213.
3. Your Child from One to Six, 4,549,896.
4. Your Federal Income Tax, 3,480,002.
5. Your Child from Six to Twelve, 1,755,626.
6. Your Social Security, Old-Age and Survivors Insurance, 1,195,729.
7. Postage Stamps of the United States from 1847 to 1957, 1,009,195.
8. Air Craft Power Plant Handbook (CAA), 582,607.
9. Pilot's Weather Handbook (CAA), 568,126.
10. Know Your Money, 407,200.

### Film on Food Quackery

How modern "medicine men" dupe the public into spending millions of dollars on unnecessary or overpriced nutritional products is the story unfolded in a new American Medical Association film. Prepared especially for airing over local television stations under the auspices of local medical societies, this new 27-minute film—"The Medicine Man"—dramatically pinpoints the fight against quackery in the food and nutrition field.

The film singles out problems which stem from health lecturers who travel from town to town giving misinformation on nutrition as a tie-in to plugging their products of questionable merit and from door-to-door salesmen who misrepresent the value of nutritional products. The film also shows how the medical profession cooperates with the Food and Drug Administration and voluntary agencies such as the National Better Business Bureau in the crackdown on these food quacks.

First showing of the film was at the A.M.A.'s Public Relations Institute, August 27-28, at the Drake Hotel, Chicago. Prints are available to local medical societies from the A.M.A. TV Film Library.

### Study of Anticancer Agents

Eight contracts with seven pharmaceutical firms for work on possible anticancer agents and for studies to improve methods of testing such compounds were announced recently by the Public Health Service.

Merck and Company, Inc., Rahway, New Jersey, will receive \$275,000 for producing chemicals and hormonal substances whose preparation has been described in the scientific literature. If the compounds are found safe for humans by thorough animal tests, they will be tested against human cancer.

Three contracts are for supplying and testing materials as possible anticancer agents, and for seeking improved methods to test materials. These contracts are with Schering Corporation, Bloomfield, New Jersey, for \$240,000; Armour and Company, Chicago, for \$66,735; and Pitman-Moore Company, Indianapolis, for \$91,770.

The remaining four contracts are principally for studies to improve methods of testing potential anticancer compounds. Included in this work will be testing methods using tissue cultures, various bacteria and other organisms, and a number of animal tumors. The contracts are with Bristol Laboratories, Inc., Syracuse, New York, for \$229,753; Upjohn Company, Kalamazoo, for \$145,000; Merck and Company for \$500,000; and Parke Davis and Company, Detroit, for \$350,000.

The eight contracts, amounting to \$1,898,258, will be administered by the Service's Cancer Chemotherapy National Service Center at the National Cancer Institute, Bethesda, Maryland.

Ten drug firms now have 12 contracts with the Public Health Service for cancer chemotherapy work. These agreements total approximately \$3,500,000.

## DEATH NOTICES

### DURRELL KEELING KNIGHT, M.D.

Dr. D. K. Knight, 63, a general practitioner in Kansas City for 33 years, died there on August 4 after suffering a heart attack. He was an active member of the Wyandotte County Medical Society. Dr. Knight received his medical education at the University of Kansas School of Medicine, graduating in 1924. During both World War I and World War II he served in the medical corps of the Army, and had since been an active member of the American Legion.

### ANDREW J. TURNER, M.D.

An honorary member of the Anderson County Medical Society, Dr. A. J. Turner, 89, died on August 4 in Garnett, where he had practiced 45 years before his retirement. He was graduated from Kansas City Medical College in 1902 and later studied at Tulane University, New Orleans. A veteran of three wars, the Spanish-American War, World War I, and World War II, he was an active member of the American Legion.

### GEORGE MORRIS GRAY, M.D.

Dr. G. M. Gray, 102, Kansas' grand old man of medicine and an honorary member of the Wyandotte County Medical Society, died at St. Margaret's Hospital, Kansas City, on August 12.

Dr. Gray was graduated from the Kansas City Medical College in 1879. He began practice in Kansas City in 1880 and later joined Msgr. Anthony Kuhls in starting St. Margaret's Hospital, which he served as chief of staff for 55 years. In 1912-1913 he served as president of the Kansas Medical Society. A member of the Western Surgical Association and a fellow of the American College of Surgeons, he was also professor of surgery at the University of Kansas School of Medicine for a long period of time.

His interest in civic affairs prompted him to respond to a draft by city voters to serve as mayor and to lead in creation of a Board of Public Utilities for Kansas City. He was closely associated with the Riverview State Bank and the Victory State Bank over a long period of time, serving the former as a director for more than 40 years.

### JOSEPH A. POPPEN, M.D.

A physician who had practiced in Jewell County 52 years, Dr. J. A. Poppen, 82, died at a Concordia hospital on August 16. For 25 years he served the Iona community and for 27 years he practiced in Burr Oak. He was a graduate of the St. Louis University Medical School. Dr. Poppen was honored by his home community on his 80th birthday, at which time he estimated that he had delivered 2,700 babies.



# Tumor Conference

## *Carcinoma of the Breast During Pregnancy*

Edited by **HOWARD P. FINK, M.D.**

Dr. Friesen (Moderator): The following case represents a coincidence which is fortunately uncommon but is likely to catch us unaware when it does occur. Dr. McGannon, will you give us the history?

Dr. McGannon: The patient is a 28-year-old Negro housewife who is now gravida viii and para vii. One pregnancy, eight years ago, ended in spontaneous abortion in the third month of gestation; the others, except the most recent, have been entirely normal.

Her next to last delivery occurred in March, 1957. She gives a vague history of a burning sensation in her left breast a month or two following this delivery. She shortly became pregnant again; her last menstrual period began on June 24, 1957, and soon thereafter she reported to the out-patient department of this hospital for prenatal care. The pregnancy pursued an uneventful course until, early in January 1958, she noted a tender mass in the upper outer quadrant of her left breast. This lump gradually increased in size during the next two weeks, when at her next prenatal visit it was found to be about 3 centimeters in diameter. The mass was biopsied the next day. The pathologist's diagnosis was carcinoma, and a few days later a radical mastectomy was performed.

Dr. Friesen: Did the mass have an inflammatory appearance?

Dr. McGannon: No, it was neither red nor warm. Our preoperative diagnosis was fibrocystic disease.

Dr. Friesen: Certainly a more likely possibility than carcinoma in a patient this age. Why was the mastectomy delayed?

Dr. McGannon: Because the frozen sections of the biopsy specimen did not give conclusive evidence of carcinoma, and we and the pathologist agreed to wait for the permanent sections to confirm the diagnosis.

The patient made a good recovery from the operation and has remained free of clinical evidence of metastases. Her delivery was normal, but it occurred about eight weeks prematurely. The baby has done well.

Dr. Friesen: Dr. Williams, are any metastases visible in the x-ray films?

Dr. Williams: No, chest plates show no skeletal or pulmonary lesions, and the lumbar spine and pelvis likewise are radiologically normal.

Dr. Friesen: Dr. Helwig, were metastases found in the axillary lymph nodes?

Dr. Helwig: Yes, 30 nodes were dissected from the mastectomy specimen, and 11 of these contained tumor. Seven nodes of the 30 comprised the highest group, and metastatic deposits were present in all seven. The primary tumor was about 4 centimeters in diameter; it was poorly demarcated and firm, but not so hard as many carcinomas of the breast. Histologic sections of the tumor show malformed acini and solid nests of enlarged, hyperchromatic gland cells. The stroma in some fields is desmoplastic, but at the margins of the tumor there is less stromal reaction, and the neoplastic cells are extending out into florid, highly active, lactating breast tissue (Figure 1). It is worth noting that stromal reaction, which can be regarded as a form of host defense against the tumor, is almost entirely lacking in the lymph node metastases.

Dr. Friesen: Pregnancy; a tumor mass greater than 2.5 centimeters in diameter; and involvement of the highest lymph nodes—these features all indicate a bad prognosis, do they not?

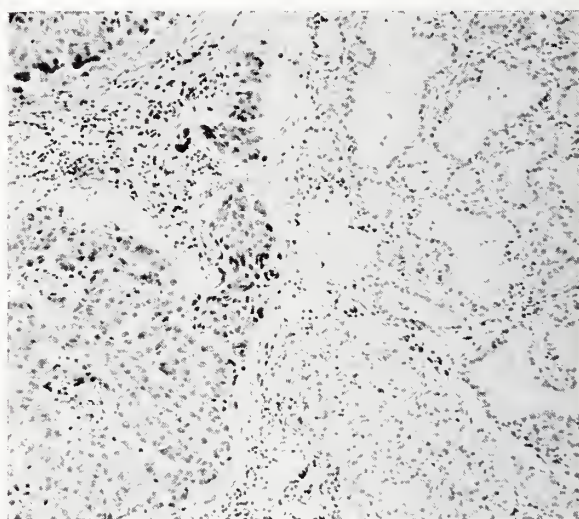


Figure 1. Carcinoma invading lactating breast. (Approximately 100x. Tumor on left of photograph.)

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Fink, formerly a trainee of the National Cancer Institute, is presently an Instructor in the Department of Pathology and Oncology, University of Kansas Medical Center.

Dr. Helwig: Indeed they do, but not a hopeless one. The outlook in carcinoma of the breast in pregnancy does not appear to be as black as it has been painted. Several years ago, Haagensen and Stout<sup>1</sup> listed pregnancy or lactation as one of their criteria of inoperability in carcinoma of the breast; but they have withdrawn this opinion since White<sup>2</sup> in 1954 published a review of the available literature on the subject. He reviewed 724 cases of mammary carcinoma beginning during pregnancy or lactation, and added to these ten new cases, gleaned over a 30-year period from three large hospitals. This condition is not a common one, obviously. The surprising finding, however, was that 17.1 per cent of these women were still alive five years after mastectomy, and 11.4 per cent survived ten years or more. Admittedly, these figures do not compare well with survival rates for breast carcinoma in which pregnancy is not a factor, but they do show that concurrent pregnancy or lactation does not necessarily make the diagnosis of carcinoma of the breast a death sentence.

Although carcinoma of the breast seems to have an inherently worse prognosis when its onset is during pregnancy, the survival rate could probably be improved by quicker surgical intervention once the tumor is discovered. The patient often delays treatment by mistaking the tumor for a part of the swelling of the breast that occurs normally during pregnancy. White found, in fact, that this delay averaged two months. Many of these tumors clinically resemble inflammatory lesions, and occasionally they are even incised because of a mistaken diagnosis of abscess.

The question of therapeutic abortion may arise in the management of carcinoma of the breast in pregnancy. Sixty of the 734 patients in White's review submitted to abortion, without any appreciable effect on the course of their disease. It appears, from the standpoint of statistics as well as that of morality, that therapeutic abortion for breast cancer is not a justifiable procedure. The baby's chances to be born normally and live out his life span outweigh the mother's chances for survival by too wide a margin.

Incidentally, White's series also included 208 cases of carcinoma of the breast followed, at an interval of a year or more, by pregnancy. The five-year survival rate in this group was 49 per cent, about the same as the overall rate for carcinoma of the breast unassociated with pregnancy. In other words, a subsequent pregnancy does not seem to increase the likelihood of recurrence of the tumor.

Dr. Friesen: Among surgeons there is a growing body of opinion favoring prophylactic castration as part of the treatment of mammary cancer in premenopausal women—that is, castration shortly following mastectomy in an attempt to prevent or delay recurrence. For example, Treves,<sup>3</sup> after studying a series of 152 cases so treated, concludes that prophylactic

castration materially improves the prognosis in young women. What was your decision on this phase of the problem, Dr. McGannon?

Dr. McGannon: We thought that castration would probably better the patient's chance of survival. We decided on the surgical method, and a bilateral oophorectomy was accordingly done, about three months after the mastectomy. The ovaries showed no gross or microscopic lesions.

Dr. Tice: I might add that adequate x-radiation is as effective a method of castration as surgical removal of the ovaries and in some circumstances is preferable to an operation. We use a total dose of 1500 r; this invariably causes permanent cessation of menstruation.

Dr. Friesen: In a recent investigation, Block<sup>4</sup> and his associates found that x-ray and surgical oophorectomy were equally effective in eliminating the production of estrogen, as measured by the amount of estrogen excreted in the urine, although the results of irradiation were slower to appear.

I believe that the present consensus is that hormone therapy for breast cancer, other than oophorectomy, is best withheld in the absence of demonstrable metastases. There are many gaps in our knowledge of the interacting influence of various hormones on the course of carcinoma of the breast. We can be fairly sure that estrogen deprivation will produce a remission if the patient is young, but in a given case we can't with confidence predict a good effect from ablation of the ovaries unless osteolytic metastases are present in the skeleton. In such a case increased excretion of calcium following administration of stilbestrol indicates that oophorectomy will result in a remission.

Dr. Helwig: This patient, we must admit, has a less than average chance of remaining free of her tumor. Although a discussion of other types of hormonal therapy, including ablation of other endocrine organs and administration of exogenous hormones, is not at present germane to this case, it may well become so in a few months. A major flaw in all such treatment is that any induced remissions are only temporary, and are followed by reactivation of the tumor. I do not think relapses are always due to escape of the tumor from hormonal control. Many women whose ovarian function has been destroyed by menopausal involution, by surgery, or by x-ray, will show the effects of estrogen years later in their cervical epithelium, as seen in a Papanicolaou smear, which I consider a more reliable index of estrogen production than any chemical determination such as Block and his group used. This finding suggests that in women who have lost their ovaries, some estrogen may later be secreted by other organs, probably the adrenals. Perhaps this is one reason why adrenalectomy may cause a second remission in a patient with



disseminated mammary carcinoma who has had a previous remission induced by castration. Again, a resumption of tumor activity, after a period of quiescence following adrenalectomy, may be due to the presence of accessory adrenal tissue in sites that have escaped the surgeon's eye: in the walls of the uterine tubes, beneath the capsules of liver or kidneys, or adjacent to the abdominal aorta. Graham<sup>5</sup> found nodules of accessory adrenal cortex about the origins of the celiac and superior mesenteric arteries in 32 per cent of a series of routine autopsies, a surprisingly large proportion for this single location.

Dr. Friesen: This problem of accessory adrenal tissue must be part of the reason why hypophysectomy is gradually supplanting adrenalectomy as the next step following castration in the surgical treatment of advanced carcinoma of the breast. Adrenalectomy, estrogens, androgens, cortisone, hypophysectomy, x-ray—any or all of these may prove useful in the further management of this patient.

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### Central Repository for Medical Credentials

The secretary general of the World Medical Association announces that the services of a Central Repository for Medical Credentials is now available to the doctors of the world. All judicious precautions will be exercised to protect the records of depositors.

During war and national uprisings, medical records are destroyed or lost. The plight of hundreds of doctors who fled from their homelands during World War II and the more recent Hungarian uprising stimulated the World Medical Association to undertake means assuring the doctor that he will always be able to prove himself medically trained and fully accredited to practice medicine. Today, many doctors are working as laborers or research assistants because of the loss or destruction of their original credentials and the lack of a protective service in which authenticated copies could be deposited.

The development of the Central Repository for Medical Credentials has been in process for approximately four years. During that period, detailed studies revealed: (1) the need for and interest of the medical profession in this service; (2) the wide variations between countries in the legally acceptable form of medical credentials in establishing qualification to practice; (3) the best method of identifying the individual and his right to the medical credentials; (4) the lowest feasible service rate to assure the life-time utilization of the service for every doctor in the world, and (5) techniques of national and international processing of the application and credentials.

The life-time cost of the service on a one-payment basis to the newly graduated doctor is approximately \$60 (USA). An actuarial schedule has been established for doctors in various age groups. A ten-year service rate is also available.

Provisions have been effected for the depositor to add additional credentials he receives to his file in the repository at a minimal service charge.

The officials of the repository recommend that doctors deposit their credentials in a form legally acceptable in the country or countries in which they would desire to establish themselves as qualified to practice medicine. It suggests that the credentials so deposited include official medical school record, medical diploma, and specialist credentials.

Photostatic or microfilm copies of the original credentials are recognized or coming to be recognized in an increasing number of countries. However, some countries still require authenticated copies of the original or the original record itself. It is hoped that the medical profession in countries not now recognizing microfilm copy as legally acceptable will undertake the project of having it so recognized.

Additional information on the repository is available from the World Medical Association, 10 Columbus Circle, New York 19, New York.

Only eight states in the entire country have one psychiatrist for less than 20,000 population, according to the publication *Patterns of Disease* prepared by Parke, Davis and Company for the medical profession. In a special report on emotional health the publication stresses lack of adequate services and facilities as the number one mental health problem today. The three states in which the ratio of psychiatrists to the population is highest are, in order, New York, Connecticut, and Massachusetts. "The New York metropolitan area with less than 10 per cent of the population has over 20 per cent of the psychiatrists," *Patterns* discloses.



# Economics in Medicine

## *Outline of Insurance Factors Affecting Practice*

H. O. ANDERSON, M.D., and CHARLES ROMBOLD, M.D., *Wichita*

As practitioners of medicine, your income is derived partly from some form of insurance, and it is important that you should have a working knowledge of the various types and how they affect you in your practice. Insurance, in some form or another in the practice of medicine, is here to stay; and we must cooperate and accept it along with the fact that the doctor-patient relationship has been invaded by a third party. This relationship should be understood by all involved; you, particularly, should know how you fit in this triangle. It is the purpose of this paper to help inform you on your obligations to the other two parties, and to yourself. The patient pays for medical protection the same as you and I pay for protection on our cars, for which prompt and efficient service is expected. It is income to you.

Before going into the peculiarities of the doctor-patient relationship in insurance practice, let us examine this relationship in the private case. The private patient presents himself to a doctor for examination or treatment. The patient has ordered the work and assumes responsibility for the bill. The relationship is one in which the doctor is a personal servant, and all the information gained by the physician is the property of the patient. That is, all information is confidential and may not be divulged by the doctor to anyone, unless the patient gives his written permission. Statutory law guarantees this privilege to the patient and offers him legal recourse if the doctor defaults in his responsibilities. There are only two parties involved, even though the patient may be in the care of a guardian. This is the common concept of doctor-patient relationship. Therefore, it is important for the doctor to obtain written permission before giving anyone a report regarding his findings.

In determining the application of statutory law of privileged communication, the important considerations are: Who ordered the work? Who is responsible? Who is paying the bill? If the patient or his representative does not order the work and does not assume responsibility for the bill, the statutory law of privileged communication does not apply insofar as the report to the responsible party is concerned. The

law still applies regarding reports to anyone other than the three parties.

There are seven kinds of insurance practice, each with a somewhat different patient-doctor relationship. You must be fairly conversant with these types of insurance practices, recognize in which category each patient belongs, and conduct your relations accordingly.

**1. Life Insurance Examinations:** This is strictly a private patient relationship except that a single third party, the insurance company, is entitled to answers to specific questions on the blanks. The insurance company orders the work and pays the bill, but it is entitled only to specified information. Many of you, I am sure, have had insurance examinations and know that it was limited to filling out specific forms.

**2. Liability Insurance:** This provides the purchaser with protection against claims for damages to others, resulting from accidents caused by his negligence. It is the injured person who provides his own medical care, selects his own physician and hospital, and is solely responsible for payment of this care. The physician employed is responsible only to the patient, and all matters relative to the injury are private communications until the physician is given permission, by the patient, to release the information to a specific third individual representing the patient or the insurance representative.

These are typical automobile claims in which the patient is protected by medical coverage other than his own. Liability insurance practice has a second phase, which is the determination of disability resulting from an accident. This is similar to disability for a compensation case and may be requested of the treating physician, or from a physician unrelated to the treatment of the case. Information derived from this type of examination is the absolute property of the person requesting the examination and is ordered and paid for by either the patient or the insurance company.

Compensation for disabilities arising from an automobile accident, if it is a large amount, is often not determined by the insurance company until independent evaluations by one to three doctors have been procured. This is no reflection on the doctor who is treating the patient. The company is merely trying to arrive at a satisfactory settlement figure for the dis-

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Prepared in this form by Dr. Anderson for presentation to senior students at the University of Kansas School of Medicine.

abled patient. Many times the disability figure arrived at is much higher or lower than the figure which was originally thought to be accurate by the treating physician.

### 3. Privately Paid Sick and Accident Insurance:

This is actually prepaid medical care for illness or injury unrelated to employment. The patient purchases a certain amount of medical care, which is specifically defined in the policy. Policies vary greatly in the extent of medical care provided, but presumably the patient knows what coverage he has purchased. The insurance company in almost all cases—with the exception of Blue Cross-Blue Shield—pays to the patient, and not to the doctor, the amount specified in the policy for the specific care provided.

Some policies have an assignment clause designating that the money be paid directly to the doctor. This cannot be done, however, unless the patient signs this assignment. In this type of insurance practice, the doctor is responsible to the patient not only for providing the care, but also for proving to the insurance company that the care was administered. He must look to the patient for payment of his bill. The insurance company is not entitled, without the patient's permission, to more information than a diagnosis established and the care given. In this type of insurance, the patient definitely orders the work and pays the bill.

I am sure you are all familiar with the various types of hospitalization plans. There are numerous ones on the market. We in Kansas, however, are partial to the Blue Cross-Blue Shield plan since it is sponsored and supported by the medical profession and is a non-profit organization.

**4. Company or Group Sick and Accident Insurance:** This differs only from private insurance in that the employer pays part of the cost of the insurance. The relationship of the doctor, the patient, and the insurance company remains exactly the same as in privately paid insurance policies. The employer is not entitled to any information not provided the insurance company.

**5. Benefit Insurance:** This provides assurance to the person holding such a policy that a specific financial obligation will be fulfilled. If one purchases a home or automobile, etc., on time payments, he may also take out a benefit policy, which assures that payments will be made by the insurance company if illness or death prevents completion of the purchase. Your responsibility as a doctor in this situation is to supply proof to the insurance company that the patient is actually disabled and incapable of working to meet the payments. In this case the patient must, and of course will, give permission to divulge this in-

formation. The above is a common occurrence, especially in car or house payments, and you will be asked frequently to fill out a disability form so that these car and house payments will be met on schedule.

**6. Disability Insurance:** This insurance is what its name implies. Here again the doctor's responsibility is to his patient, and only proof of disability is transferable information. Relationship to the insurance company is the same as in the previously listed types of insurance. For example, if you are carrying disability insurance and are injured, you would expect to be compensated for your lost time.

Each of the above types of insurance practice is essentially private practice. I shall list them again for you.

1. Life insurance examination
2. Liability insurance, treatment and examination
3. Sick and accident insurance
4. Group sick and accident insurance
5. Benefit insurance
6. Disability insurance

Any information to the insurance company must be released only with the patient's written consent. A safe measure to take is to require routinely the signed permission of your patient. Many insurance forms or inquiries are automatically accompanied by this consent, previously obtained by the insurance company for your protection; if the insurance company has not supplied this consent, you must obtain it. The one form of insurance practice in which it is unnecessary to obtain permission from the patient to release information is industrial compensation insurance practice. This is the seventh type of insurance practice. It is the type with which you will be confronted most frequently, I am sure.

**7. Industrial and Compensation Insurance:** This provides medical care for accidents or disease arising from employment. I wish to refer you to the *Workmen's Compensation Law Manual*. The most recent was compiled September 1, 1955. I would suggest you each procure one. It completely outlines the law, medical examination, the forms, how they are to be filled out, and a complete fee schedule. It can be procured through the office of the Workmen's Compensation Commissioner, 501 Jackson Street, Topeka, Kansas, free of charge.

Under compensation insurance, the patient is not responsible for payment of the doctor's bill, but the employer or his insurance company is responsible. Usually the employer, and not the patient, engages the doctor's services; thus the doctor is responsible to the employer for the quality and quantity of medical care provided. The doctor becomes, in effect, an employee of the company and is responsible to the company for information concerning the injured em-

ployee. There are no privileged communications in this relationship.

Because compensation law reimburses the employee for any permanent damage to his earning capacity resulting from the hazard of his employment, there is a second phase after treatment. Determination of the degree of permanent disability must be established. This percentage of disability must be established by the treating physician, but often the employer or the employee may request an opinion from an additional physician who has never treated the employee. This is a disability rating examination and, until recently, was privileged communication for whoever requested the examining physician's services. The law now provides that the employee may have a copy of this special examination if he requests it, even though it is ordered by the insurance company. Also, by ruling of the commissioner, this must be supplied to the employee without charge by the doctor.

In all Workmen's Compensation cases under treatment, a Form G is filled out in triplicate after the first examination and after the last examination. These must be filled out accurately and promptly. During the course of treatment, progress reports are frequently requested by the insurance company. These are narrative in form and usually short. After a patient has recovered, or requires no further medical care, a final examination and report may be requested by the insurance company. This is also presented in narrative form, essentially the same as a special report. On this you will make your final disposition, estimate disability, and answer any specific questions relative to follow-up care of the patient. You will be compensated according to the fee schedule, which is set up by the state of Kansas.

Regardless of the type of report, it is advisable to make a carbon copy for your records. In compensation cases it is further advised that two copies be filed, in anticipation of a request for a copy by the patient. Insurance companies usually request that three copies be forwarded to them. This entails considerable paper work and extra help, but if you are doing general practice, or any type of specialty practice, you will be immediately confronted with this insurance problem.

Fees for the ordinary private practice or liability cases are, of course, up to the doctor. In compensation cases, however, all fees are set by the commissioner. Familiarize yourself with this list of fees in the *Workmen's Compensation Manual*. According to the Workmen's Compensation Law, the employer, through his insurance carrier, is responsible for care of the injured employee up to an expense of \$2,500. This includes doctor and hospital bills, ambulance expense, private nurse bills, drugs, prostheses, and any

other expenses incurred in the care of the injured workman. If total expenses exceed \$2,500, the insurance company may prorate this sum to all of the bills, and not spend a cent more for medical care.

Many compensation cases end in court because of a disagreement in disability evaluations. Therefore, it is extremely important that you, as a treating physician, have a complete and accurate record of all events regarding any particular case.

While you are treating the workman during his period of disability, he will be compensated. This varies to a certain extent with the type of work he is doing, but it averages approximately \$32 per week. When the patient has been dismissed, and it is for you to determine his disability, the *Manual* will again be of great help in figuring out this disability. There are certain definitely described injuries for which definite compensation amounts are allowed. For example, the loss of a hand will pay 60 per cent of the average weekly wages during 150 weeks. This is the law. The same applies to other scheduled injuries.

Disability is estimated from loss of function alone which includes range, power, sensation, and deformity. This figure you will have to estimate. It is at this time that the employer, or the employee, may request an impartial examination by one or two other doctors to determine a satisfactory figure. However, final determination of disability rests with the commissioner. He will determine the award. We, as physicians, merely act as fact finders and present our own personal opinions.

Much of the previous material was obtained from a paper given a few years ago by my associate, Dr. Charles Rombold, to whom I must give credit for going into this so completely. I was unable to find any specified material which so thoroughly listed the various types of insurance. As related to the practice of medicine, insurance is complicated, but it is extremely important that you be familiar with these procedures in order to maintain, as nearly as possible, your normal doctor-patient relationship.

We think of the old family physician with his doctor-patient relationship confined to two people. Now we have a third party in the picture. We must accept it and cooperate, because we cannot change it.

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New Mexico, Utah, and North and South Carolina have the lowest death rate from cancer in the country, according to the publication *Patterns of Disease*, prepared by Parke, Davis and Company for the medical profession. The northeastern states rank highest in the national pattern of cancer deaths, with Massachusetts heading the list.



# Myocardial Ischemia

## *Critical Assessment of Surgical Treatment*

F. P. COSSMAN, M.D., *Kansas City*

Coronary artery disease is one of the main killers.<sup>1</sup> Like other diseases, hypertension and cancer, the etiology is unknown, but it has been recognized as a disease since antiquity. Only in the last few years has a serious attempt been made to determine its cause.<sup>2</sup> The only certain etiologic factor is heredity, but the most discussed and debated theory is concerned with distorted metabolism, particularly involving cholesterol.<sup>3</sup>

Men are affected more than women, in the ratio of four to one. This fact might lead to a consideration of possible hormonal factors. Men are affected from 18 years on, but the incidence is greatest in middle life.

Many are inclined to think of coronary artery disease as being manifested mainly by coronary artery thrombosis with resulting myocardial infarction, but death occurs in over 50 per cent without the formation of coronary thrombi, although in 80 per cent of these there is complete or almost complete occlusion of one or more arteries by sclerotic plaques. Even with a fresh thrombus many die suddenly without evidence of myocardial infarcts. Sudden death occurs in more than 50 per cent of cases. Younger men are more prone to sudden death, the incidence being as high as 80 per cent in those under 40.<sup>4</sup>

Coronary occlusion, myocardial infarction, angina pectoris, and acute coronary insufficiency are all essentially manifestations of the same underlying process—arteriosclerosis affecting the coronary arterial system. Like arteriosclerosis elsewhere, it may be part of a generalized process involving all of the arteries of the body in approximately equal degree, or it may be so much more advanced and progressive in the coronary arteries than elsewhere as to seem to be an isolated process.<sup>5</sup>

One may consider coronary arteriosclerosis to be essentially an occlusive process in which the lumina of the large and of the medium-sized coronary arteries are progressively diminished by subintimal thickening of the vessel walls.<sup>6</sup> Plaques of subintimal cholesterol deposition or of actual erosion may be

seen predisposing to the development of thrombosis with complete obliteration of the lumen. Since the muscle-bearing moderate-sized branches of the coronary arteries are functionally similar to end arteries for a given area of the heart, the segments of myocardium normally supplied by each of these vessels may become infarcted unless sufficient collateral channels have become established or have opened up to maintain nourishment of the myocardium. Schlesinger and Zoll<sup>7</sup> have shown that only the larger and medium-sized branches of the coronary arteries are affected by the occlusive process.

Effective treatment for the patient with coronary artery disease must achieve four cardinal aims: (1) prolong life, (2) reduce invalidism and disability, (3) relieve pain and discomfort, and (4) maintain productivity and well-being.<sup>8</sup> Obviously, the ultimate solution is that of prevention of the occlusive process in the coronary arteries. Until this can be achieved, the patient with coronary artery disease must be given the benefit of any procedure which safely and effectively accomplishes the four aims. Standard medical therapy which always includes some degree of restricted activity may achieve the third aim at the expense of the second and fourth, with only questionable influence on the first. It may be demonstrated that surgical operation is a practical method for achieving all four aims.

### **Background**

In 1889, Francois Franck<sup>9</sup> first proposed sympathectomy as surgical treatment for angina pectoris. It was not until 1916, however, that Jonnesco<sup>10</sup> actually operated on a patient with syphilitic aortitis and angina by sympathectomy and obtained complete relief of pain. This procedure consisted of bilateral extirpation of the cervical sympathetic chain and the removal of both first dorsal ganglia. Although control of pain by this means is at times dramatic, it is not consistent. According to Harken<sup>11</sup> the mortality of 50 per cent in a 2½-year period after operation suggests that the progress of the primary disease had not been significantly altered.

The work of Beck<sup>12</sup> is pre-eminent among direct attempts to improve the myocardial blood supply. His early efforts were directed toward development of vascular adhesions as a source of extrinsic coronary cir-

This is one of a group of these written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Cossman has recently completed internship at the University of Kansas Medical Center.

culation. In 1935 he used a pectoralis major muscle graft as the proposed source of new vessels with bone dust applied as an irritant after mechanical abrasion of the epicardium.

Similarly, O'Shaughnessy<sup>13</sup> in 1936 used alleuronat paste as an irritating substance and omentum as the source of external collateral vascular supply. Lezius<sup>14</sup> in 1937 suggested lung as the source of vascularization. Various modifications of these basic recommendations have been described. Outstanding among these has been the work of Thompson<sup>15</sup> using talc or magnesium silicate as an irritating substance.

All of the above authors reported a striking similar mortality in dogs (about 70 per cent from ligation of the anterior descending coronary artery in the unprotected dog). Fauteux<sup>16</sup> reaffirmed this and then reported a salvage rate of 75 per cent in dogs after ligating the great cardiac vein. He modified this operation in 1946 by combining pericoronary neurectomy, and he felt that this had further protective effect.

Since 1946 Vineberg<sup>17</sup> has ingeniously employed the left internal mammary artery as a source of arterial blood for the ventricular myocardium. He has implanted the internal mammary artery in the wall of the left ventricle and is convinced from injected and cleared specimens that new vessels branch out and communicate with the existing coronary arterial tree. This concept has had experimental support and has relieved pain in human beings.

In 1948 Beck<sup>18</sup> first reported arterialization of the veins by producing an arterial shunt from aorta to the coronary sinus. In a second operation, he ligated the coronary sinus between its termination in the right atrium and the anastomosis in order to effect complete reversal of flow through the coronary veins. Once again a survival rate of approximately 75 per cent of animals, following anterior descending coronary artery ligation, was reported as well as a reduction in the size of the infarct produced. Also in humans suffering from angina, pain has been relieved by this procedure.<sup>19</sup>

Over and over for the past 20 years, investigators<sup>20</sup> have ligated the anterior descending coronary artery in dogs and have found that approximately 70 per cent of the normal "unprotected" dogs have died. With this base line, a wide variety of surgical procedures has been carried out on experimental animals to bring about "protection" against this fairly constant control mortality. The investigations have been associated with rather surprisingly uniform success. It is a remarkable fact that approximately 75 per cent of animals have survived ligation of the anterior descending coronary artery regardless of which of the diverse procedures was employed.<sup>21</sup>

Recently, an Italian group discussed a new and

simple technique for revascularization of the heart in coronary artery disease. It has been proposed that ligation of the internal mammary arteries distal to the branch of the pericardiophrenic artery and the other branches which supply the pericardium improves the myocardial blood supply. At this date it is too early to evaluate results of these experiments.

## Surgical Procedures to Increase Coronary Circulation

### 1. Surface of Ventricles

*a. Grafts.* The first method attempted was to bring arterial blood to the surface of the ventricles.<sup>22</sup> This has been accomplished by means of grafts, such as pectoral muscle, omentum, lung, and skin. In these procedures, the graft is sutured to the surface of the left ventricle. It was hoped that new blood vessels would grow from the graft into the ventricular myocardium and thereby supply it with fresh arterial blood.

According to Beck,<sup>32</sup> the problem of producing a new blood supply to the heart resolves itself into two components: (1) to provide a vascular bed from which blood vessels could grow directly into the myocardium, (2) to reduce circulation in the myocardium, so that collateral circulation in the adhesions might develop. This study, begun in 1932, was based on 103 dogs. Attempts were made to produce collateral circulation to the heart by experimental operations in which pedicled grafts of muscle were used together with pericardial and mediastinal fat for the vascular bed. Experiments showed that a collateral blood supply to the heart of dogs develops following operation. The circulatory bed thus supplied does not interfere with the filling and emptying of the heart. This vascular bed distributes blood supply to the myocardium and experimentally becomes a mechanism which permits compensation that protects a faltering heart from stopping.

It was concluded that when a collateral vascular bed is supplied to the dog's heart, as was done in these experiments, the coronary arteries can be completely occluded without producing infarction or fibrosis of the myocardium. Recovery in dogs was obtained with total occlusion of the circumflex branch of the left coronary artery. In one dog recovery occurred after complete occlusion of the right coronary artery, complete occlusion of the ramus descendens at the bifurcation of the left coronary artery, and almost complete occlusion of the circumflex branch of the left coronary artery.

In 1935 Beck<sup>24</sup> reported on a case in which this type of collateral circulation was given to a patient by means of the operative procedure. The patient claimed that he was greatly benefited 3½ months following operation.



O'Shaughnessy<sup>25</sup> in 1936 devised a way to increase the efficiency of the extra-cardial anastomoses. This procedure used a pedicled omental graft brought up into the chest through the diaphragm, using a thoracic approach to secure the omentum. The operation was done on 14 cats and 2 dogs, and although some of the animals had been previously subjected to ligation of the coronary artery, in no case was any immediate postoperative distress observed. After injections of Indian ink suspension into the heart through the graft, particles of ink could be seen emerging from the cut aorta. In some of the sections vessels filled with ink were seen lying immediately beneath the endocardium, and particles of the suspension were seen lying free in the chambers of the heart.

As demonstrated on animals, the graft operated in several ways. Not only is a new blood supply brought into direct relationship with the ischemic areas and with the coronary tree, but the normal collaterals in the mediastinum are both reinforced and given access to the ischemic heart. The second function of the graft appeared more important in man than the animal, for the vessels surrounding the pericardium seem larger than normal. A third function of the graft is its "bridge" action in supplementing the natural anastomosis between the right and left coronary arteries.

In 1937 Lezius<sup>26</sup> grafted the surface of the lung to the myocardium by suture in dogs, and, in addition, used a 30 per cent solution of flavine to stimulate the formation of adhesions. This method in animals has resulted in formation of adhesions between the graft and the myocardium which contained blood vessels sufficient in size and number to serve effectively as a source of collateral circulation to the heart.

In 1949 Carter<sup>27</sup> advocated cardiopneumonopexy by which this procedure brings collaterals to the myocardium via the lung and pleura. Comparison of specimens obtained from dogs in which ligation of the anterior descending branch of the left coronary artery had been performed after cardiopneumonopexy with those from dogs in which ligation alone was done revealed less extensive infarcts and a lower mortality in the protected series. Whereas the mortality in the protected series was 20 per cent, in those animals with simple ligation it was 48 per cent. Severe infarction occurred in 75 per cent of animals with simple ligation, but in only 23 per cent in animals with ligation subsequent to cardiopneumonopexy. Smith<sup>28</sup> has reaffirmed that collateral circulation adequate to maintain the myocardium in face of sudden coronary occlusion was developed by cardiopneumonopexy. In 1955 Smith<sup>29</sup> reported on a series of eight patients in whom cardiopneumonopexy was performed. None had anginal pain following operation; all reported exercise capabilities tremendously extended.

Moran<sup>30</sup> has suggested tubed pedicled skin grafts to the ventricular myocardium from his experimental studies, since pedicled grafts of the skin and subcuta-

neous tissue serve their usual purpose by providing structural material for the restoration of substance to regions of the body mutilated as a result of injury.

Newmann,<sup>31</sup> in his experimental work in 1952, reported that the presence of a pedicled graft passing through the chest wall, pleural space, and pericardial cavity was borne without ill effect in 25 of 28 dogs. This was not associated with any clinically evident undesirable effect upon their cardiac function.

That generously-sized anastomoses developed between the extremity of the pedicled graft and the myocardium was demonstrated in two ways: (1) When the thoracic pedicle of a graft was divided at the level of the chest wall, blood spurted freely from the cut surface of the portion of the graft applied to the myocardium, and then during a two-week period of observation, the graft, nourished only from the myocardium, retained its viability; (2) When the heart was subjected to sudden ligation of the descending branch of the left coronary artery at a second operation a month after application of the graft to the myocardium, no fatality was experienced in any of six animals.

Contrary to this, Von Wedel<sup>32</sup> found in work with pedicled skin flap in the experimental animal that the extracoronary source of blood was not responsible for survival of the experimental animal following occlusion of the coronary arterial supply; and the findings indicate the extent to which the normal heart is capable of protecting its blood supply, following slow occlusion.

*b. Cardiopericardiopexy.* Another method of bringing fresh blood to the ventricular surface is by the creation of granuloma between the parietal and visceral pericardium.<sup>34</sup> The rationale of cardiopericardiopexy is to convert the ischemic myocardium into a relatively hyperemic myocardium.<sup>35</sup> This is accomplished by distributing a foreign body such as talc, asbestos, or bone over the surface of the epicardium. The powder is irritating and produces a foreign body reaction involving the surface of the pericardium, terminating in a vascularized, chronic, adhesive granulomatous pericarditis. This function is evidently a ceaseless activity. The lesion is constantly characterized by hyperemia and, presumably, by accelerated flow of blood through newly formed and pre-existing dilated vascular channels in the chronic, adhesive granulomatous pericarditis.<sup>36</sup>

This procedure was first attempted by Beck<sup>37,38</sup> using a burr, beef bone, and finally asbestos powder. The Beck I operation<sup>39</sup> as now practiced consists of four components: (1) mechanical abrasion of the lining of the parietal pericardium and the surface of the heart; (2) application of an inflammatory agent to these surfaces in the form of 0.2 gm. of powdered asbestos; (3) partial occlusion of the coronary sinus to a diameter of 3 mm.; and (4) grafting



parietal pericardium and mediastinal fat to the surface of the heart.

It is stated that each procedure contributes something to the beneficial effect of the operation. The inflammatory reaction produced by abrasion and asbestos produces intercoronary channels. Partial occlusion of the coronary sinus provides more complete extraction of oxygen from the blood, reduces oxygen differentials in the presence of coronary occlusion, and produces intercoronary channels. Sinus occlusion is not beneficial in the presence of normal coronary arteries, since it reduces arterial inflow, but it is beneficial in the presence of occlusion.<sup>40</sup> The grafting of tissues on the heart may bring additional blood to the heart.

This operation has been well tested in the experimental laboratory.<sup>41</sup> The protection of the Beck I operation in terms of mortality and size of the infarct has been reported.<sup>42, 43, 44, 45</sup> In normal dogs the mortality following complete ligation of the descending ramus of the left coronary artery at its origin in one step was 70 per cent. In 30 dogs in which the operation was done preceding identical artery ligation, the mortality was 26.6 per cent.<sup>46</sup> This is a reduction of 43.4 per cent produced by the operation. The hearts in each group that survived the test artery ligation were examined, and the size of the infarct was measured. In hearts that were protected by operation the infarct was 60 to 70 per cent smaller than in the control group. In some of the specimens from animals having had the Beck I operation there was no gross infarct.

The Mautz-Gregg<sup>47</sup> method of backflow yields important information and was used in many experiments. This method consists of ligation of either the circumflex ramus or the descending ramus of the left common coronary artery. One of these vessels is ligated proximally and cut distal to the ligature. The amount of blood flowing from the distal end of the cut artery is the backflow. Recent measurements obtained by Leighninger<sup>48</sup> and Beck<sup>49</sup> are presented. In 67 normal dogs the average backflow was 3.8 cc. per minute. After the No. 1 operation was done the backflow in 41 dogs one year after operation was 8.5 cc. per minute, or an increase of 4.7 cc. The improvement is probably permanent.

Of the 56 patients operated on at Mount Sinai Hospital<sup>50</sup> from 1954 to 1956, there were three deaths associated with the operation (mortality of 5.4 per cent.) All three patients were "salvage patients," poor operative risks in whom not much benefit was expected. As of October 1955, the first 44 patients discharged from the hospital had been followed for periods of 10 to 38 months. Of these 44, only two were known to be dead, and one could not be traced. All three of these were salvage cases; of these first two one died in seven months, the other 12 months after operation. Both showed some degree of improvement before death.

This long term mortality of 6.8 per cent compares favorably with control mortality statistics in a similar group of patients on medical treatment from which group a mortality of 25 per cent would be predicted for this time span. In these 44 patients the duration of symptoms of coronary artery disease ranged from 4 months to 13 years with an average of 2.9 years. Angina of various degrees of severity was present in 41. In 36, one or more myocardial infarctions had been proved clinically. In less than 15 per cent of this group there had been evidence of further muscle destruction even after three years of electrocardiographic evaluation. Of the 41 patients known to be alive, previous to operation 16 had been able to work full time or more than half-time despite pain. The other 25 worked less than half-time or not at all. The results are tabulated below.

<i>Pain</i>		<i>Ability to Work</i>	
No pain . . . . .	16 36.5%	Full time . 27	61 %
Much less pain 22	50 %	More work 10	23 %
No change . . . 3	6.7%	No better . 4	9.3%
Dead . . . . . 3	6.7%	Dead . . . 3	6.7%

Heinbecker<sup>51</sup> in 1939 developed a procedure consisting of the production of a sterile, adhesive, but non-constrictive type of pericarditis and the suturing of the pericardium to the retrosternal tissues in which the intercostal and the internal mammary arteries course. Dogs were used as experimental animals. Sodium morrhuate and powdered aleurronat were injected into the pericardium; the parietal pericardium was then sewed to the retrosternal tissues. It was shown by this method that it is possible with safety to develop a vascular bed which would serve to supply a rich collateral circulation to the myocardium of the experimental animal.

Schildt<sup>52</sup> in 1943 reported on the effect of various inflammatory agents applied to the surface of the heart. He stated that the most desirable substance appeared to be one that produces a well-vascularized type of granulation tissue without producing necrosis of the myocardium, severe exudation, and cicatrization. On the basis of these experiments it appeared that silicate in the form of powdered asbestos produced the most favorable reaction. The inflammatory reaction brought about by asbestos is well-vascularized; it does not produce compression of the heart due to the formation of scar tissue, and the inflammatory reaction persists over a period of several months. It has been shown that it reduces the mortality following ligation of a coronary artery and that it reduces the size of the infarct that develops after a coronary artery has been ligated.

Thompson<sup>53</sup> in 1953 reported that after the introduction of magnesium silicate inside the pericardial sac, an acute inflammatory reaction takes place that involves all of the structures in the mediastinum, including the pleura, pericardium, epicardium, and ad-

jacent myocardium, the esophagus, and lungs. One of the characteristics of this acute reaction is the marked hyperemia of the myocardium that occurs within a few hours. As a result of this reaction and the hyperemia, there is a dilatation of the anastomosing blood vessels that are already present between the main coronary arteries and a stimulation in the formation of new intercoronary channels. As the acute reaction subsides, it is followed by a chronic reaction, a foreign body granuloma that develops on the surface of the myocardium; this is characterized by hyperemia and increased vascularity. This chronic inflammatory reaction may last for many years.

The hyperemia of the myocardium is further enhanced by the free communication of new blood vessels between the mediastinal structures and the adherent pericardium and myocardium. If the necessary length of time is given, or a sufficient stimulus exists, the rate at which these new collaterals are formed may become equal to the rate of occlusion produced by the disease process. Thompson believes that the irritation and hyperemia of the talc reaction is a sufficient stimulus to the myocardium for the development of new interarterial communications. Even though the hyperemia of the acute reaction subsides, and some of the immediate stimulus is thereby withdrawn, the increased collateral formation, once it is started, may continue to form and function for an indefinite period of time.

Thompson<sup>54</sup> reports that his procedure for cardiopericardiopexy is a simple one performed in one stage in 30 minutes or less. No exceptionally vascular or heavy muscular planes need to be transected; and no intricate, time-consuming anastomotic procedures are a part of the procedure. Shock originating from excessive manipulation of vital organs and vessels, prolonged surgical exposure, or grave blood loss is a problem never encountered.

In 1953 he reported on a series of patients in whom the Thompson<sup>55</sup> procedure of operation was performed. The total number of operations was 57. Deaths attributed to the operation and all hospital deaths after the operation numbered 7, giving an operative and hospital mortality of slightly more than 12 per cent.

The 50 remaining patients were followed to the time of the report or their death. Five, or 10 per cent, received less than 50 per cent improvement and were classed as poor results. The remaining 45 patients, or 90 per cent, received more than 50 per cent improvement. Twenty of these patients, or 40 per cent, received more than 75 per cent improvement as measured by four tests and were classed as markedly improved. The four tests which Thompson<sup>56</sup> uses to determine postoperative benefits are: (1) decrease in amount of anginal pain, (2) increase in exercise tolerance, (3) improved ability to attend to daily

needs, and (4) a return to former or a more gainful occupation.

Thompson stated that some patients in the markedly improved group were subjectively normal and had no angina and no decrease in exercise tolerance. According to the author, his operation had produced satisfactory results which could not be duplicated by other measures for a group of patients who were medical failures and almost all of whom were completely incapacitated.

Gorelik,<sup>57</sup> in a series of 36 patients, reported results similar to those of Thompson. The results of operation on 36 patients were gauged by effect on exercise tolerance, severity and frequency of anginal pain, and ability to return to work. On this basis the results were classified as excellent in 14 patients and good in 12 patients. The immediate mortality rate in the 36 cases was 5.5 per cent, which the author states is surprisingly low in view of the fact that most of the patients who survived the operation were able to resume normal or almost normal physical activities with no or minimal disability. This was true in the group of patients with severe coronary disease who were completely disabled by anginal pain or heart failure for a long period prior to the operation.

Plachta<sup>58</sup> reported on a series of 57 patients who were operated upon by means of cardiopericardiopexy between November 1938 to July 1952. A study was made of the cases to determine the degree of relief and improvement which had occurred and also to determine the length of life following operation. Seven of the patients died within three weeks after surgery. Of the remaining patients, four, or 10 per cent, were improved less than 50 per cent, and 20 were considered as having poor results; 25 patients were improved more than 50 per cent, and 20 patients were improved more than 75 per cent. Thirty-three of the patients were still living at the time of the report, and the 17 who died lived an average of five years after pericardiopexy.

Furthermore, Plachta's investigations disclose the nature, development, and behavior of the talc-produced granulomatous pericarditis and its vascularization following cardiopexy. The talc serves as a trigger device, irritating the pericardial membranes and initiating vasodilatation. The lesion is constantly characterized by hyperemia and, presumably, by accelerated flow of blood through newly formed and pre-existing dilated vascular channels in the chronic pericarditis, which was found to have persisted at least 10 years following operation.

In 1955 Briggs and Byron<sup>59</sup> reported on their experience with cardiopexy with eight patients in two years. Within this group there were three good results, two apparently good results—three months since surgery—and three deaths. Of the deaths, only one was during the operation, the remaining two were late, one six months after operation and the other 14



months. The late deaths were due to coronary infarction in poor risk patients, but both patients were improved up until the time of death.

## 2. Cardiac Vein Ligation

Fauteux<sup>60</sup> in 1940 suggested that there was considerable evidence, both experimental and from necropsy observation, that the myocardial ischemia of coronary disease has as its chief danger the unbalanced distribution of blood flow through the coronary arteries, rather than decrease in the total blood volume to the muscle. When the heart succeeds in overcoming by itself the ill effects of coronary narrowing or occlusion, it is not so much through acquiring additional blood from collateral sources outside the heart as through readjustment of its own coronary circulation. Therefore, any surgical procedure designed to correct this unbalanced flow would seem both logical and justified.

Experiments on dogs are described in which were performed: (1) partial coronary arteriectomy of the ramus descendens; (2) partial coronary arteriectomy of the same arterial trunk combined with ligation of the vena magna cordis. When partial resection of the ramus descendens at a high level was done, a high mortality resulted. When the same procedure was carried out after venous ligation, all dogs, apart from those dying of operative complications, remained healthy for over a year. It was concluded that vena magna cordis ligation in occlusion of the left ramus descendens helps to maintain adequate coronary circulation after partial coronary arteriectomy. There is of course no indication that ligation of the vein is likely to prevent thrombosis from occurring in an atheromatous but still patent coronary artery; but it was suggested by the experimental evidence that previous ligation will, by bringing about changes in the vascular bed, prevent the formation, or at least limit the size, of an infarct when the coronary artery is later tied off, and will under these circumstances prevent sudden death.

Siderys and Shumacker<sup>61</sup> observed that animals subjected to the operative control of simple pericardiectomy did as well following interruption of the anterior descending branch of the coronary artery as did animals subjected to ligation of the great cardiac vein. In the former the mortality was 60 per cent and in the latter 75 per cent.

## 3. Arterialization of the Coronary Venous System

A completely new approach to the problem was devised by Beck<sup>62</sup> who anastomosed the aorta to the coronary sinus by a vein graft. By this method fresh arterial blood is sent into the coronary sinus along the coronary veins. After anastomosis is made, it is possible to ligate a major coronary artery with little or no mortality and with little or no infarction. The first stage of the operation provides a fistula from aorta

through the graft and into the coronary sinus. Most of the blood escapes into the right auricle. The flow is rapid, as in an arteriovenous fistula elsewhere. In several patients with coronary artery disease,<sup>63</sup> pink blood could be seen in the veins on the posterior aspect of the heart at the first stage of the operation. This pinking of the venous system became more extensive if the sinus were occluded temporarily. Three weeks following the first stage of the operation, a ligature was put on the sinus where the blood leaves the heart into the auricle, so that it did not run out of the fistula. Some of it remained within the venous system of the myocardium and in that way benefited the heart.

This operation, according to Beck,<sup>64</sup> is beneficial in 3 ways: (1) It actually produces retrograde flow from the aorta through the graft, through the venous system in the heart, and through the capillary bed where it gives up its oxygen; (2) Intercoronary channels are created in the heart, communications from one coronary artery to another, and (3) Blood is delivered in that extremely rich venous network on the venous side of the capillary bed, and oxygen can diffuse from these small veins and become available to the myocardium without actually going through the capillary bed. In 1948 Beck<sup>65</sup> and his associates reported that the introduction of arterial blood into the coronary sinus protected the dog's heart to a high degree against occlusion of a major coronary artery.

McAllister<sup>66</sup> in his work with dogs has shown that in 47 consecutive cases there was no mortality and the grafts remained open in 65 per cent of the cases. The procedure of arterialization of the coronary sinus alone furnished some protection to the heart against occlusion of a major coronary artery. If, at a second stage, the coronary sinus is partially occluded to 3 mm. diameter, there is no further mortality nor does it cause the grafts to become thrombosed. On the other hand, this two-stage procedure protected 12 of 13 dogs' hearts against occlusion at the origin of the anterior descending branch of the left coronary artery.

The physiologic explanation<sup>67, 68</sup> of the protection to the heart afforded by coronary sinus arterialization is believed to be threefold: (1) The myocardial capillary bed is perfused in retrograde fashion with arterial blood, (2) The myocardium is capable of extracting oxygen from the blood supplied to it in retrograde fashion, and (3) There is a significant increase in the blood flow occurring via intercoronary arterial anastomoses. Both anatomic and physiologic evidence bears out the assumption that arterialization of the sinus in time brings about a progressive and great dilatation of the normally minute existing intercoronary communications. Extracardiac anastomoses between the coronary vessels and adjacent structures also become established and functioning.

Hahn and Beck<sup>70</sup> ligated the descending ramus of the left coronary artery in normal and in sinus-arterial-



ized animals with the results of a 70 per cent mortality following left anterior descending ligation in the normal dogs, and the myocardial infarcts were extensive in those surviving ligation. In sinus-arterialized dogs the mortality fell to 11 per cent. In these dogs a gross infarct was absent in more than one-half of the specimens, and in the remaining ones the myocardial destruction was limited to small areas.

Eckstein and co-workers,<sup>71, 72</sup> in experiments on acutely prepared sinus-arterialized animals, demonstrated an immediate protection to the heart against ventricular fibrillation following circumflex coronary artery ligation. In those experiments the animal was deemed a survival if it lived for more than 60 minutes following circumflex coronary artery ligation. In a group of normal control animals, seven died of ventricular fibrillation within an average of 8.9 minutes. In a group of acutely prepared sinus-arterialized animals, none died within the prescribed 60 minutes.

The mortality rates of Bakst et al.<sup>73, 74</sup> in their experiments were essentially similar to those reported by Hahn and Beck. Ligation of the circumflex coronary artery resulted in a 90 per cent mortality rate in normal animals. The average time of onset of ventricular fibrillation was 13.7 minutes following ligation of the artery. The mortality rate in animals in which the coronary sinus had been arterialized for 4 to 8 weeks was 20 per cent. Ligation of the circumflex branch of the left coronary artery in animals in which the coronary sinus had been arterialized for six months produced a 66 per cent mortality. Retroperfusion of the myocardial capillary bed, which was demonstrated in the four- to eight-week animals, could no longer be demonstrated in the six-month group of animals.<sup>75</sup>

In summary, acute and chronic coronary sinus ligation or arterIALIZATION of the coronary sinus appears to give immediate and sustained protection to a heart against ligation of a major coronary ramus. Experiments designed to elucidate the physiological mechanism involved have been rather disappointing and cannot be regarded as yielding critical evidence. In the acute experiments speculation would suggest that as a result of these coronary venous maneuvers a small volume of blood is flowing from the coronary sinus through the capillary bed into the ventricular cavities and that this is sufficient to maintain viability of the potentially infarcted myocardium, increase the fibrillation threshold, give time for collateral development, and thus account for the decreased mortality and infarction which follows. According to Gregg,<sup>76</sup> it may be that an effect of the procedure is to reduce left coronary inflow, render the left myocardium somewhat anoxic, and thereby stimulate growth of inter-coronary artery collaterals. However, a complete and entirely satisfactory physiological explanation of the protection afforded is not yet available, and more experimental work must be done.

In application to patients with coronary artery

disease, Beck<sup>77</sup> has divided this aspect of the work into early and late periods. In the early period, dating approximately from January 1948 to December 1950, only patients who were entirely or almost entirely incapacitated from work were accepted for operation. These patients showed extensive and irreversible damage in the heart. No doubt most of them were poor risks for any operation, and the damage in the heart muscle in some of these patients was such as to make questionable the degree of benefit that might have taken place if the patient had recovered from the operation. In this group of 12 patients there were eight deaths and four recoveries.

In the late period, December 1950 to April 1951, 28 patients were operated upon. In this series there were 23 recoveries and five deaths, a mortality of 18 per cent. Four of the five patients who died had advanced degenerative disease and were completely or almost completely incapacitated. Of the 23 patients who recovered, 13 had both stages of the operation and two had only the first stage done. The graft was thrombosed in six, and the graft was not placed in two. In the 43 patients with operation No. II, there was no pain in 39.6 per cent, less pain in 48.8 per cent, a total of 88.4 per cent. Those better able to work with no limitations were 41.9 per cent, better able to work with some limitation, 37.2 per cent, a total of 79.1 per cent.<sup>78</sup>

Bailey<sup>79</sup> in 1955 reported on a series of 71 patients in whom the Beck II operation was performed. There were nine operative deaths. It was found, in the remaining 62 patients, that all were benefited to some extent by this procedure.

#### 4. Internal Mammary ArterIALIZATION of Left Ventricular Muscle

In 1946 Vineberg<sup>80</sup> described an anastomosis between the left internal mammary artery and the left coronary circulation. This occurred in a dog 99 days after transplantation of the left internal mammary artery into the wall of the left ventricle. The basic objective was to supply a fresh source of arterial blood to the heart muscle. In order to do this, the left internal mammary artery had been partially removed from its normal position on the chest wall and implanted into the myocardium of the left ventricle.

Murray<sup>81</sup> in 1937 made an attempt to bring the internal mammary artery into the cardiac muscle, but it was his impression at that time that these vessels tended to become plugged and that there was no improvement of coronary circulation.

Vineberg,<sup>82</sup> in a description of results obtained in 10 dogs, found that 2, or 20 per cent, showed a definite communication between the left internal mammary artery and the left coronary circulation. In 9 of 10 animals the internal mammary artery after transplantation revascularized the surrounding structures. In 8 of 10 animals the internal mammary artery became partially adherent to the chest wall in its former

bed; and a constricting scar developed at the junction between the free arterial portion and that part of the artery which re-adhered to the chest wall. He postulated that the frequency of the communication would appear to depend upon the formation of scar tissue around the transplanted internal mammary artery. Vineberg<sup>83</sup> has shown the development of anastomosis between an implanted internal mammary artery and the left ventricular system. This has been provided by injection, x-ray films, serial sections, and digestion cast studies.

Recently Glenn and associates<sup>84</sup> confirmed the development of an anastomosis between an implanted internal mammary artery and the coronary vessels. It was shown that there was a lack of reaction in the myocardium to the implanted artery, the lumen of the artery remained patent in spite of an intimal proliferation, and the changes at the end of the implanted artery were those of organization and channeling. There was a suggestion that the mammary-coronary anastomosis tends to disappear at the end of eight weeks.

In Vineberg's series,<sup>85</sup> the average interval from implant to sacrifice was 11 weeks. Some animals were kept for 58 weeks after implantation. The anastomoses at the end of that time not only persisted but were large enough to protect against death and infarction following ligation of the anterior descending branch. Generally the implanted artery remains patent in 80 per cent of implants.

Bakst and associates<sup>86</sup> report on their experiments on animals in which the internal mammary artery had been implanted into the ventricular myocardium for six months. Retrograde flow from the distal cut end of the ligated left anterior descending coronary artery averaged 2.3 cc. per minute, representing a normal amount of the intercoronary arterial anastomotic flow. This intercoronary anastomotic flow was demonstrated to arise almost entirely from the nonoccluded circumflex artery. Pathologically, the lumina of the implanted vessels were 95 per cent obliterated by the severe intimal proliferation. It was impossible to demonstrate that systemic artery implanted into the ventricular myocardium for six months could materially increase or contribute to the extracoronary collateral anastomotic flow of the interrupted anterior descending artery.

Vineberg<sup>87</sup> in October 1955 reported on a total of 45 patients suffering from coronary artery insufficiency who had been treated by internal mammary artery implantation. In the 33 patients who had no angina at rest, there were two deaths. In the 12 patients suffering from angina decubitus, there were seven deaths. The mortality rate of the entire group was 20 per cent.

An analysis of the condition of the 45 patients prior to operation has been made showing that 78 per cent were not working and the other 22 per cent

were working and using nitroglycerine. Eighty-four per cent had had one or more infarctions.

The results of treating 40 human patients with advanced coronary artery insufficiency by internal mammary artery implantation were given. All were followed from six months to 4½ years after operation. There were 30 patients who had no angina at rest. Of this number 77 per cent were totally disabled prior to operation. Twenty-eight survived the operation, and 16 had no pain or slight pain. In four the pain was less. Those with no pain totaled 20 (71.4 per cent). Seven patients were the same or worse. Twenty-three (77 per cent) of the group returned to work following operation. This is a complete reversal of their condition before operation. Twenty-four (85.7 per cent) of the group were still alive at the time of the report, and 18 (64.2 per cent) had no pain, or less pain, while 19 (67.8 per cent) still were working. In the angina decubitus group there were 12 patients, all totally disabled. Five survived operation, four were improved, and three returned to work.

Vineberg<sup>88</sup> states that his results are most encouraging for the treatment of coronary artery insufficiency. The frequency of mammary-coronary anastomosis is dependent upon: (1) technique of preparation of the artery, (2) technique of implantation, and (3) condition of the myocardium into which it is implanted.

## Discussion

Clinical improvement in patients with angina pectoris has been reported following various procedures such as omentopexy, aortic-coronary sinus anastomosis, coronary sinus ligation, myocardial implantation of the internal mammary artery, and stimulation of pericardial adhesions by magnesium silicate, asbestos, and other foreign substances. All of these operations have as their objective the introduction of an extracardiac blood supply which will substantially augment the deficient coronary flow. Protection against subsequent myocardial infarction might also be provided. These various procedures have been subjected to the test of animal experimentation. Patients have been operated upon, and favorable effects on angina pectoris have been observed. Caution must be observed in applying the results of experiments on the normal dog heart to the diseased atherosclerotic human heart with its established narrowing, occlusions, and rich network of compensating intercoronary anastomoses.<sup>89</sup>

Of prime importance in the successful application of surgery is the basic concept of the consequences of coronary artery disease in man.<sup>90</sup> It has been demonstrated that its catastrophic sequelae are due to muscle destruction only to a minor degree.<sup>91</sup> The great majority of deaths from coronary occlusion are caused by a disruption of the normal coordinated mechanism in the heart beat.<sup>92</sup> Death is due to inequalities in blood supply to contiguous areas of the myocardium.



The heart with diffuse coronary disease and with equally generalized reduction in coronary blood flow is electrically stable. With inequalities in blood supply, electrical instability occurs and may result in cardiac death. Briefly, as a result of unequal blood supply to contiguous areas, the relatively ischemic area becomes electrically negative to surrounding better-oxygenated muscle. This may produce ventricular fibrillation and cardiac arrest if the fibrillation threshold of the myocardial fibers falls low enough. Thus, a condition of electrical instability is said to exist. In a heart rendered generally ischemic, there may be extensive destruction of muscle, but this heart is still electrically stable.

According to Beck<sup>93</sup> there are two types of death in coronary artery disease: one is mechanism death, the other is muscle death. Mechanism death occurs in those patients in whom the heart is capable of continued function. Something happens that destroys the co-ordinated beat. These patients, a large group, are candidates for surgical operation. The other patients develop extensive degenerative changes in the myocardium; they are not candidates for operation.

The coronary circulation should be considered on the basis of (1) total inflow and (2) distribution of the blood that goes through the disease arteries.<sup>94</sup> The heart can maintain function on a small fraction of normal total inflow.<sup>95</sup>

Zoll<sup>96</sup> has reported that intercoronary arterial channels were found in every heart in which a major coronary artery was completely and chronically occluded. The significance of this finding is that the presence of intercoronaries makes it possible for the heart to continue to function, thus providing time for the occlusive process to become complete. This author found that intercoronaries are present less frequently in specimens in which the occlusive process was complete and acute.

Beck<sup>95</sup> has concluded that coronary occlusion, with a factor of time, is another stimulus for production of intercoronary communications. Those patients who make a good recovery after coronary occlusion do so because they develop good intercoronary communications. This author states that surgical methods can contribute the time factor; this is provided by extra-coronary communications and by the effect of inflammatory agents on the heart.

In a laboratory and clinical evaluation of operations for coronary artery disease Leighninger<sup>97</sup> has analyzed the effect produced in the experimental animal of three procedures: (1) Beck I operation which consists of abrasion of the epicardium and pericardium, partial coronary sinus ligation, application of 0.2 Gm. powdered asbestos, and grafting of the abraded pericardium to the surface of the heart; (2) the Thompson procedure by the application of 4 to 6 Gm. of talc to the surface of the heart; and (3) the Vineberg internal mammary implant procedure. A

quantitative evaluation of intercoronary arterial communications was made by the Mautz-Gregg backflow method and the average backflow measurements are given:

	Backflow	Protection Shown
Normal control animals . . .	3.8 cc. per min.	by EKG
Beck I operation . . . . .	8.5 cc. per min.	68%
Thompson talc procedure . .	4.9 cc. per min.	25%
Vineberg mammary artery implant . . . . .	3.5 cc. per min.	0%

From these findings the Beck I operation provides the greatest amount of backflow and also affords the most significant amount of protection as recorded by the electrocardiogram.

Beck and Leighninger<sup>98</sup> have also reviewed the effect produced by the Beck II operation which consists of arterialization of the coronary sinus by directing arterial blood from the aorta into the partially occluded coronary sinus. From this procedure they found the average backflow measurement to be 11.3 cc. per minute. From these experimental studies they proposed the Beck II operation as providing greater protection than the Beck I operation. However, they found the mortality rate was higher with the Beck II operation.

Beck and Leighninger<sup>99</sup> have reviewed the clinical results obtained with 33 patients with the No. I operation and 43 patients with the No. II operation. These results are as follows:

	No. I	No. II
No pain . . . . .	36.3%	39.6%
Less pain . . . . .	48.5%	48.8%
No change . . . . .	9.1%	7.0%
More pain . . . . .	6.1%	4.6%
Work with no limitations . . . . .	27.2%	41.9%
Work with some limitations . . . . .	51.4%	37.2%
No change . . . . .	15.3%	16.3%
Less able to work . . . . .	6.1%	4.6%
Mortality . . . . .	7.5%	26.1%

Vineberg<sup>100</sup> in 1955 reviewed a total of 45 patients suffering from coronary artery disease which had been treated by internal mammary artery implantation. The mortality rate of the entire group was 20 per cent. The findings were:

<i>Before Operation</i>				
	NO. OF PATIENTS	TOTALLY DISABLED	SURVIVED	
No angina at rest . . . .	30	77%	93.3%	
Angina decubitus . . . .	10	100%	50.0%	
<i>After Operation</i>				
	NO PAIN OR SLIGHT PAIN	LESS PAIN	SAME OR WORSE	RETURNED TO WORK
No angina at rest . . .	57.2%	14.2%	25%	77%
Angina decubitus . . .	20 %	60 %	20%	60%



Thompson<sup>101</sup> in 1954 reviewed a series of 57 patients who received cardiopericardiopexy by means of introduction of talc inside the pericardial sac. His results showed a 12 per cent mortality.

Less than 50% improvement ..... 10%  
 More than 50% improvement ..... 90%  
 More than 75% improvement ..... 40%

### Summary

The history, development, and description of surgical procedures for the treatment of myocardial ischemia have been presented. An evaluation of experimental and clinical results of these procedures has been reviewed.

The primary indication for operation is a positive diagnosis of coronary artery disease. Ideally, operation is performed before there is extensive damage to heart muscle. Operation can prevent mechanism death and it can relieve areas of ischemia responsible for pain, but it cannot restore degenerated heart muscle, nor can it arrest the occlusive process in the coronary arteries. When there has been so much muscle damage that the heart has begun to dilate, it is too late for operation. Selection and evaluation of patients is properly carried out by the internist and cardiologist, independently of the cardiac surgeon. Great care must be exercised in establishing the diagnosis. Surgical operation cannot give the heart a new system of coronary arteries. It can supply a crutch to a crippled coronary circulation.

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## ABSTRACTS FROM CURRENT LITERATURE

*Use of Intravenous Dramamine to Shorten the Time of Labor and Potentiate Analgesia.* By C. W. Rotter, J. L. Whitaker, J. Yared, in *American Journal of Obstetrics and Gynecology* 75, 1101 (May) 1958.

The authors treated more than 250 parturient women with dimenhydrinate (Dramamine) by vein and found that the drug almost invariably both shortened and eased labor. They employed data from nearly 250 other patients as controls.

Dimenhydrinate reduced pain and induced a sense of tranquility and freedom from apprehension. Moreover, dimenhydrinate potentiated the action of drugs such as Demerol and Nisentil and in many instances made the use of such analgesic agents unnecessary. The authors emphasize the importance of this latter point, particularly in the conduct of premature labors.

Dimenhydrinate may be given advantageously at any stage of labor, but these investigators found it especially useful and effective during the latent and acceleration phases.

Their routine dosage was 100 mg. diluted in 10 cc. of water, given intravenously, very slowly. Slow administration, they emphasize, is necessary to prevent elevation of blood pressure, headache, and even nausea and vomiting. Pharmacologically, dimenhydrinate is a potent antihistamine with secondary atropine-like antispasmodic actions and local anesthetic effects. Side actions of drowsiness, relaxation, and sedation, usually unwanted in ambulatory patients, are decidedly desirable qualities during labor.

Cervical trauma, which occurs in all labors, postulates the liberation of histamine. Histamine contributes to the spasm of the cervical smooth muscle, thus retarding the progress of labor. The authors conclude, therefore, that the use of an antihistaminic drug to inhibit this spasm will operate beneficially for the patient throughout labor.

Dimenhydrinate initiated obstetrical analgesia more promptly and effectively than other well established regimens these investigators have used. The average length of labor as compared to that of the controls in this study was decreased by 3.13 hours (34.8 per cent) in the primiparas and 2.7 hours (41.9 per cent) in the multiparas. In addition, all phases of cervical dilatation were appreciably shortened in primigravidas. Fear of labor and childbirth was noticeably reduced.

The authors conclude that dimenhydrinate intravenously is effective in shortening the duration of labor.

Dimenhydrinate administered intravenously has a wide margin of safety, and no ill effects were noted in either mothers or children. The drug has a tranquilizing effect, diminishes pain and substantially potentiates the effect of other analgesics.

*Effect of Cobalt-Iron Therapy on the Blood Picture in Premature Infants.* By E. F. Diamond, F. Gonzales, and A. Pisani, in *Illinois Medical Journal* 113:154 (April) 1958.

The authors note that the newborn is subject to decrease in hemoglobin and red cell levels during the early part of the first year of life. An early phase of this anemia may occur within the first month or two of life, and this may be due to failure of the bone marrow to assume full erythropoietic activity.

Iron deficiency anemia does not usually occur until the fourth to sixth month when reserve iron is exhausted. Rapid growth in the premature exaggerates the iron deficiency. Prophylactic administration of iron is of little value during the early months of life, possibly due to the low level of erythropoiesis.

Cobalt has been shown to stimulate erythropoiesis. Since erythropoietic activity appears to control iron absorption and utilization, a combination of cobalt and iron might be expected to prevent early anemia and decrease the incidence of subsequent iron deficiency.

Forty-four premature infants were treated at the Lewis Memorial Maternity Hospital. Sixteen received cobalt-iron therapy; 12 received ferrous sulfate, and 16 received no iron. The dosage of cobalt was low—2 mg./kg./day of cobalt chloride. In both the cobalt-iron group and the plain iron group the daily dose of ferrous sulfate was 75 mg. Treatment was continued for six months and hematologic determinations were made at monthly intervals. Hemoglobin determinations indicated no significant differences in the group treated with iron and the control group. The mean values obtained with cobalt-iron treatment, however, were above those in the other two groups.

At the two-month period, the cobalt-iron group exceeded the other by more than 1 Gm./100 cc. of hemoglobin and remained near this level for the remainder of the study.

During this interval, 15 cobalt-iron treated patients met or exceeded the mean value of the other groups. No intolerance, thyroid abnormality, or other untoward effects were seen. It would appear that the low dosage of cobalt used in this study, in conjunction with iron, is an effective prophylactic measure in the prevention of both the early anemia of infancy and the subsequent development of the iron deficiency state.



## BOOK REVIEWS

*Orthopedic Diseases—Physiology, Pathology, Radiology.* By Ernest Aegerter, M.D., and John A. Kirkpatrick, M.D. Published by W. B. Saunders Company, Philadelphia. 602 pages, 354 figures. Price \$12.50.

In this volume the authors discuss various diseases affecting the skeleton on the basis of the physiologic, histologic, pathologic, and morphologic changes encountered in each. This discussion is preceded by a review of physiology, histology, etc.

In considering the diseased states, the discussion is divided conveniently into disturbances in skeletal development, disturbances in the normally formed skeleton, and tumors and tumor-like processes.

The congenital anomalies are discussed in detail under the first heading, as are lipo-dystrophies and disorders of vitamin metabolism. Under disturbances in the normally formed skeleton, circulatory, metabolic, endocrine, and infectious diseases are considered, and under the third heading, tumors of bone, cartilage, and other connective tissue.

The book makes an excellent reference work since each disease is considered in all its aspects, collecting material which would otherwise be difficult to assemble. There are reproductions of tissue sections, numerous photographs, and reproductions of x-rays. Abnormal physiology is outlined and some clinical information is supplied under each topic. Moreover, some matter is presented on which little information is readily available. For example, there is a discussion of the skeletal effects of hypervitaminosis A.

Although the subject matter contained in the volume may not be of wide general interest, it presents orthopedic pathology lucidly, together with its clinical implications. It should be of great value to those receiving training in orthopedic surgery and useful to the radiologist and general practitioner as well.—J.F.T.

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*Electrocardiography.* By Michael Bernreiter, M.D. Published by J. B. Lippincott Company, Philadelphia. 134 pages, 92 illustrations. Price \$5.00.

The author has been an accomplished teacher of graduate electrocardiography at St. Mary's Hospital and the General Hospital of Kansas City, Missouri, for more than a decade. This book is meant to supplement his annual course and to outline fundamental aspects of theoretical and practical electrocardiography as seen in the office and hospital practice of the general practitioner and the internist.

The text is amazingly well directed so that the basic physical principles necessary to understand the electrical phenomena of arrhythmias, the various types of block, ventricular hypertrophy, myocardial infarction, and the effects of drugs and electrolytes are readily understood by the medical student or anyone routinely studying electrocardiograms.

There are a number of recently published text books and treatises on complicated electrocardiography that delight the specialist in this field. These are usually entirely over the heads of the average busy physician. This is the simplest book on this subject written in the past 20 years and is the only easily understood text written since the advent of the unipolar leads and the direct writing electrocardiograph machines. It should have a good reception among medical students, general practitioners, and internists throughout the country.—C.W.E.

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*Ciba Foundation Symposium on the Chemistry and Biology of Mucopolysaccharides.* Edited by G. E. W. Wolstenholme and Maeve O'Connor. Published by Little, Brown and Company, Boston. 323 pages. Price \$8.50.

Although many of the papers in this special issue are of more interest to the cancer investigator than the practicing physician, there is also material of general interest. The issue contains 21 papers by 27 distinguished British contributors. Professor A. Hadow outlines the broad front on which the subject of causation of cancer has advanced during the past 11 years and presents a review and interpretation of chemical carcinogens and their modes of action.

E. Boyland reviews the biologic examination of carcinogenic substances and summarizes the knowledge of the biochemistry of cancer of the bladder with special reference to the carcinogenic mechanism of 2-naphthylamine, tryptophan metabolites, and enzymes in the bladder tumor production.

Of some current interest is the contribution of the late Sir Ernest Kennaway, written in collaboration with A. J. Lindsey, in which they give data of assistance in the identification of compounds in various forms of tobacco and of tobacco smoke and in the atmosphere, which may represent possible exogenous factors in the causation of lung cancer.

The other papers deal with a variety of subjects including radiation carcinogenesis and leukemia in man, latent period in cancer induction, latent tumor cell theory, immunological theory of cancer, endocrine carcinogenesis, occupational carcinogenesis in relation to asbestos, chromate, nickel, haematite, pitch, tar, soot and mineral oil, carcinogenic activity of cholesterol, and the relationship between experimental findings and human liver disease.—R.E.S.

## ANNOUNCEMENTS

Clinical Conference on Cancer Chemotherapy, November 14 and 15, at University of Texas M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston. Eight hours credit, AAGP, for those registered in advance and paying \$5.00 fee. Rice-Texas A. and M. football game on Saturday, November 15.

Forty-fourth annual clinical congress, American College of Surgeons, Chicago, October 6-10. A student at the University of Kansas School of Medicine, Melvin L. Cheatham, will be one of a group chosen from 37 colleges to attend as guests of the College.

One-day symposium on infectious diseases, jointly sponsored by American Academy of General Practice, University of Kansas Medical Center, and Lederle Laboratories, September 19, Battenfeld Auditorium, KUMC campus, Kansas City. Three speakers on staphylococcal infections, Dr. Robert I. Wise, Dr. William M. M. Kirby, and Dr. Harry F. Dowling, followed by panel discussion moderated by Dr. Robert Weber. Newer therapeutic agents and perplexing disorders to be discussed by Dr. R. Cannon Eley, Dr. Thomas G. Ward, and Dr. Thomas H. Haight, all of whom will participate in question and answer discussion. Reception to follow at Hotel Muehlebach, Kansas City, Missouri.

Postgraduate course in surgery, United States Section of International College of Surgeons in Conjunction with Cook County Graduate School of Medicine, Chicago, October 13-25. Write the College, 1516 Lake Shore Drive, Chicago 10, Illinois.

*Therapeutic Uses of Adhesive Tape*, second edition of book published by Johnson and Johnson, New Brunswick, New Jersey, available to physicians on request. 130 pages, profusely illustrated.

Approved residencies in general practice available at USAF Hospital, Maxwell Air Force Base, Alabama. Includes one year of training in medicine, pediatrics, and psychiatry and one year in surgery, fractures, obstetrics, and gynecology. Write Surgeon General, Headquarters, USAF, Washington 25, D. C.

Women's Medical Association of the City of New York offers the Mary Putnam Jacobi fellowship

to a graduate woman physician, to start October 1, 1959. Closing date for applications, February 1, 1959. Write Ada Chree Reid, M.D., 118 Riverside Drive, New York 24, New York.

Omaha Mid-West Clinical Society Conference, Sheraton-Fontenelle Hotel, Omaha, November 3-6, under joint sponsorship of Creighton University School of Medicine and University of Nebraska College of Medicine. Programs available from Dr. John H. Brush, 1031 Medical Arts Building, Omaha.

Nineteenth annual meeting, American Fracture Association, Hotel Skirvin, Oklahoma City, September 30-October 2. Acceptable for Category 2 by AAGP. Postgraduate course given by University of Oklahoma Medical Center, September 29. Acceptable for Category 1 by AAGP. Oklahoma-Oregon football game in Norman, October 4. Write the Association, 610 Griesheim Building, Bloomington, Illinois.

Annual convention, American College of Gastroenterology, Jung Hotel, New Orleans, October 20-22, followed by three-day course in postgraduate gastroenterology. Write the College, 33 West 60th Street, New York 23, New York.

Two postgraduate courses offered by American College of Chest Physicians, one on clinical cardiopulmonary physiology at Edgewater Beach Hotel, Chicago, October 13-17, and one on diseases of the chest, Park-Sheraton Hotel, New York City, November 10-14. Titulation for each \$100. Write the College, 112 East Chestnut, Chicago 11, Illinois.

Applications received until December 1, 1958, for fellowship established at University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, in memory of William Heuermann. In field of experimental surgery. Tenure of one year and may be extended for one or two additional years. Annual stipend of \$7,000 for first year and \$7,500 for second year. Write Office of Education, Texas Medical Center, Houston 25, Texas.

Symposium on carcinoma of the colon and rectum to be presented at annual scientific session of American Cancer Society, October 20-21, Biltmore Hotel, New York City. Write Director of Professional Education, 521 West 57th Street, New York 19, New York.

### Exhibit on Fitness

"Seven Paths to Fitness" is the title of a new American Medical Association exhibit first shown at the Public Relations Institute, August 27-28, in Chicago. Sponsored by the Bureau of Health Education in cooperation with the Bureau of Exhibits, the new display emphasizes the following seven avenues to health and fitness: nutrition, relaxation, play, exercise, dental care, medical care, and work. Overall murals depict sources and activities in each category. The exhibit is primarily intended for professional audiences such as physicians, educators, and others having a direct interest in physical fitness. It is now available for bookings through the Bureau of Exhibits.

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### Seven Thousand New Physicians

For the fifth consecutive year more than 7,000 new physicians entered the practice of medicine in the United States during 1957. This was revealed in the 56th annual report of the American Medical Association's Council on Medical Education and Hospitals.

Of the 7,455 new doctors licensed to practice, 5,872 licenses were given as a result of written examination and 1,583 by interstate reciprocity or endorsement of credentials.

During the same period, 3,500 physician deaths were reported, which reduces the over-all gain in the doctor population to 3,955.

In all, state and territorial boards issued 15,090 licenses during the year, but 7,635 licenses went to doctors already holding licenses from another state or to men who took examinations in more than one state.

The total number of licenses issued, both by written examination and reciprocity or endorsement of credentials, represents an increase of 547 over 1956.

In issuing 2,167 licenses, California led all other states. New York was second with 1,355, while Ohio and Pennsylvania were next with 831 and 744 licenses respectively. Florida, Illinois, Maryland, and Texas each had in excess of 500. Nevada, with 15, licensed the fewest number of doctors.

During the year there were 9,116 applicants for licensure by written examination. Of these, 7,769 passed and 1,347 failed.

Included among those who took the examination were 6,244 graduates of approved medical schools in the United States; 185 from approved schools in Canada; 4 graduates of approved schools in the United States which are no longer in operation; 2,299 from foreign medical faculties; 42 graduates of unapproved medical schools in the United States

no longer in existence, and 342 graduates of schools of osteopathy.

Three medical schools had graduates for the first time during the period. They were the University of Missouri, University of Saskatchewan, and the University of Mississippi. All of the graduates of the Mississippi school passed their written examinations.

Six other schools also had no failures among their graduates. They are Stanford University, University of California at Los Angeles and San Francisco, Yale University, Albany Medical College, and the University of Utah.

The graduates of foreign faculties of medicine include both American and foreign born and the 1,345 who passed the examination represent an increase of 333 successful candidates over 1956.

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### Report on Hill-Burton

Results of a two-year study of the Hill-Burton Hospital Survey and Construction Program are now available in booklet form from the Committee on Medical and Related Facilities of the A.M.A.'s Council on Medical Service. Sections included in the report are: introduction; summary; conclusions; recommendations; federal grants-in-aid; background and basic administration; general hospitals; tuberculosis hospitals; public health centers; mental, chronic disease, and nursing home facilities; diagnostic or treatment centers; rehabilitation facilities, and other reference material. A limited number of copies are available to individual physicians and medical societies.

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### New Films Available

Three new non-scientific films for lay audiences recently have been added to the A.M.A.'s Film Library: (1) "You Are There: The Discovery of Anesthesia"—dramatizes the first time ether was used successfully in a surgical operation. This 25-minute film is narrated by Walter Cronkite of CBS Television. (2) "You Are There: The First Major Test of Penicillin"—discusses the place of scientific development in modern medicine and its influence on both peace and war. It also demonstrates preparation for testing the drug on a group of wounded soldiers. This 25-minute film also was produced by CBS Television and narrated by Walter Cronkite. (3) "Someone Is Watching"—depicts actual cases from the files of the New York State Health Department's Bureau of Narcotics Control. The film runs 16 minutes. All three of these 16 mm., black and white sound films are available from A.M.A. for showing by state and local medical societies.



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## Oral Diuril

### *Study of Its Use in Treatment of Arterial Hypertension*

CHARLES POKORNY, M.D., and L. E. PECKENSCHNEIDER, M.D., *Halstead*

Many methods have been used in the treatment of hypertension, from the marked low sodium diet, as exemplified by the rice diet, through the use of various drugs, to the surgical procedures such as splanchnicectomy. These have also been used in various combinations. With our group the alseroxylon fraction of *Rauwolfia*, either alone or in combination with *Veratrum*, has been used in the treatment of hypertensive patients.

In most instances the restriction of sodium has had an added effect. In patients with more severe hypertension who have not responded to this regimen, hydralazine hydrochloride or ganglionic drugs, or both, have been used. Most recently we have used mecamlamine hydrochloride with good effect. Problems of side effects of the ganglionic blocking drugs have been common to all, namely orthostatic hypotension, neurogenic bladder, and obstipation, although good therapeutic effect has been obtained from use of the drugs in hypertensive patients.

Recently, in an excellent paper by Hollander and Wilkins,<sup>1</sup> the use of chlorothiazide in the treatment of hypertension is discussed. Their results show that chlorothiazide in the human has a definite effect on electrolyte and water metabolism, decreasing the total body sodium and fluid volume, which has a hypotensive effect. Fries et al.<sup>2</sup> also feel Diuril appears to be a specific for the hypertensive state.

Chlorothiazide is commercially available as Diuril and is chemically known as 6-chloro-7-sulfamyl-1,2,4-benzothiadiazine-1,1-dioxide. This is a substituted benzothiadiazine compound to which a free sulfamyl group has been introduced. In both animal and clinical observations it is shown the predominant influence is on renal excretion, on sodium,

and chloride, with a similar but lesser effect on potassium and bicarbonate.<sup>3, 4</sup>

With oral administration the action starts in approximately two hours and lasts from 6 to 12 hours. This allows the drug to be given early enough in the day to avoid interrupting the patient's sleep by its diuretic effect. In most hypertensive patients there is an initial diuresis and a small weight loss which the patient gradually regains. After this there is no diuresis of importance.

All of our patients were on previous anti-hypertensive therapy. Chlorothiazide was added to the regimen, 0.5 gm. at 8 a.m. and 2 p.m. An average blood pressure of 182/104 was reduced to 138/84. In some patients on ganglionic blocking drugs it was found the dosage had to be reduced rather rapidly as the patient developed marked orthostatic hypotension. Heider et al.<sup>5</sup> have shown that chlorothiazide accentuates the effect of ganglionic blocking agents. With reduction of these agents, obstipation and symptoms of neurogenic bladder disappeared. At times the dose of *Rauwolfia* and *Veratrum* could be reduced and in many the chlorothiazide could be reduced to 0.25 gm. twice daily. Most patients commented they felt considerably better physically after several weeks on chlorothiazide.

While it has been shown that there is electrolyte

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**Chlorothiazide, given orally in combination with other antihypertensive drugs, has been found to be effective in treatment of arterial hypertension. A summarized report is given for 34 patients.**

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MEDICATIONS USED AT TIME DIURIL WAS STARTED																		
Patient	No.	Sex	Race	Age	Date	Blood Pressure	Rauwolfia	Rauwolfia E	Veratrum	Apersoline	Ganglionic Block	Date	Blood Pressure	Rauwolfia	Rauwolfia E	Veratrum	Apersoline	Ganglionic Block
VB	No. 1	M	C	59	11- 7-57	170/100			X		X	2-18-58	132/80			X		X
WB	No. 2	M	W	54	11-10-57	184/86			X		X	3-16-58	154/82			X		X
CW	No. 3	M	W	63	11- 7-57	184/94			X		X	4- 4-58				X		
AB	No. 4	M	W	43	12- 5-57	154/100			X		X	1-24-58	130/68			X		
PB	No. 5	M	W	67	12- 6-57	190/90			X		X	12-20-57	146/86			X		
JH	No. 6	M	W	63	10-30-57	200/100			X		X	2-10-58	146/84			X		
HH	No. 7	M	W	59	11-14-57	204/130			X		X	1-22-58	160/96			X		
JM	No. 8	M	W	61	1-24-58	204/104			X		X	2- 7-58	132/88			X		
AM	No. 9	M	W	47	12-12-57	172/112			X		X	1-23-58	138/92			X		
ER	No. 10	F	W	45	12-11-57	166/102			X		X	1-27-58	134/92			X		
CW	No. 11	F	W	51	12- 4-57	210/110			X		X	2-10-58	134/82			X		
TN	No. 12	M	W	60	10-18-57	180/120			X		X	1-10-58	132/88			X		
LK	No. 13	F	W	43	1- 2-58	210/130			X		X	2-19-58	146/104			X		
AA	No. 14	F	W	53	11-25-57	194/92			X		X	2-15-58	158/80			X		
MS	No. 15	F	W	56	11-25-57	174/86			X		X	2-12-58	122/70			X		
SU	No. 16	M	W	62	2- 4-58	170/110			X		X	2-21-58	136/96			X		
AW	No. 17	F	W	74	11-10-57	190/70			X		X	2-16-58	168/72			X		
CG	No. 18	F	W	60	12- 9-57	174/110			X		X	2-13-58	132/86			X		
SG	No. 19	F	W	66	12- 9-57	200/112			X		X	2-28-58	150/84			X		
LH	No. 20	M	W	54	1- 3-58	185/130			X		X	2-24-58	140/98			X		
GG	No. 21	M	W	73	2-25-58	200/106			X		X	3-25-58	120/74			X		
LR	No. 22	M	W	53	12-17-57	170/100			X		X	3-25-58	130/70			X		
MF	No. 23	F	W	54	9-25-57	250/150			X		X	11-25-57	142/88			X		
RM	No. 24	F	W	61	2- 7-58	180/110			X		X	2-21-58	126/78			X		
MB	No. 25	F	W	63	1-31-58	180/110			X		X	2-21-58	138/90			X		
CH	No. 26	M	W	61	8- 5-57	164/100			X		X	2-17-58	130/86			X		
RD	No. 27	F	W	65	9-20-57	176/80			X		X	1-28-58	120/68			X		
JJ	No. 28	F	C	41	11-11-57	178/110			X		X	1-14-58	134/82			X		
CG	No. 29	M	W	79	10-16-57	170/80			X		X	2- 5-58	148/78			X		
EB	No. 30	F	W	57	12- 2-57	195/95			X		X	2-24-58	158/96			X		
EF	No. 31	M	W	75	12- 8-57	190/100			X		X	3-27-58	150/90			X		
JM	No. 32	M	C	64	3- 8-58	230/120			X		X	3-29-58	130/80			X		
LM	No. 33	F	W	64	12-16-57	196/110			X		X	2-26-58	124/76			X		
WF	No. 34	F	W	46	10-29-57	170/108			X		X	2-17-58	144/94			X		

A. Patient No. 14 developed purpura after 42 days of taking Diuril, 0.5 gm. b.i.d. There were no abnormal blood findings. The purpura cleared up after the drug was discontinued. Again Diuril was started, only to have purpura develop again. Although the hypertension was well controlled with added Diuril, the patient has refused to start the drug again.

B. Patient No. 23 had a right hemiplegia at the time Diuril was started. Rauwolfia, Veratrum, and ganglionic blocking agents in combination did not control her hypertension. The blood pressure has been well controlled since Diuril has been added, and the ganglionic blocking agent has been discontinued.

C. Patient No. 26 has been controlled with Diuril 0.5 gm. at 8:00 a.m. and 2:00 p.m. three days a week.

reduction with chlorothiazide, at the dosage we used we have encountered no difficulties. The patients have been placed on a moderately low sodium diet, and we feel that most patients have exceeded the amount allowed.

To date we have not used Diuril alone in the treatment of hypertensives. Grollman,<sup>6</sup> in a recent communication, suggests that this drug may lower the body sodium sufficiently to control most patients with benign hypertension. Animal experiments to be published tend to confirm this suggestion.

Side effects have been minimal. Most patients tolerate chlorothiazide well. In a previous paper we reported one patient who refused the drug after taking one gram.<sup>7</sup> Occasionally we have seen nausea, weakness, and mental depression. After stopping the drug for several doses, we could resume administration of the original dose with no intolerance. It has been reported that serum potassium was low in patients with similar symptoms.<sup>1</sup> Others have reported the major side effects are those of potassium depletion and nitrogen retention, especially in larger doses.<sup>8</sup> Erythema which necessitated stopping the drug has been reported. Flushing, muscle cramps, paresthesias, and lightheadedness have been reported.<sup>1</sup> To date no hematopoietic, hepatic, or central nervous system toxicity has been noted.

Chlorothiazide has proved to be an effective hypotensive agent in combination with other antihyper-

tensive drugs. It is effective orally. Its toxicity is minimal. Blood electrolytes should be examined periodically since it has been shown the drug is capable of causing changes in these ions. It has been shown to be an effective saluretic and diuretic, useful in management of congestive heart failure as well as in other conditions causing abnormal retention of fluid.

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## THE THINKER

They may hold him in scorn and derision,  
For they sense not the depth of his thought,  
But they know that from out of his vision  
All achievements of time have been wrought.  
In his mind lies the infinite power  
That can give to thin fantasy birth,  
And we know that the thinker shall tower  
O'er the lords and the princelings of earth!

—Roland Eberhart



# Evulsion of Tendons

## *Report of Unusual Case*

**BEN L. MYERS, M.D., *Santa Rosa, California***

Although surgical literature records an abundance of material concerning injury to tendons and improved techniques in caring for such injuries, there is little or no mention of evulsion of tendons in human beings. I have conferred with surgeons with wide experience in handling destructive injuries, with industrial physicians, and with orthopedists without obtaining information on the subject. It appears that incidents of evulsion of tendons are either not recorded or are exceedingly rare.

On April 11, 1945, I was called to St. Mary's Hospital, Kansas City, Missouri, to care for a 19-year-old woman, operator of a punch press, who had suffered an injury described by the house physician as follows: "The second finger was disarticulated at the terminal articulation. The terminal phalanx with the entire tendon of the flexor profundus digitorum was detached."

The author, who formerly lived in Iola and in Kansas City, Missouri, is a member of the Allen County (Kansas) Medical Society.

Inspection showed that the punch press had traversed the terminal articulation of the second finger on the right hand with almost no injury to articular surfaces but severing all soft tissues except the flexor profundus digitorum tendon and the structure external to it on the flexor surface.

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**Evulsion of tendons either occurs rarely or is not reported since surgical literature carries little mention of the subject. A case from the author's experience is reported.**

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When the accident occurred the patient, being frightened, jerked. The machine held the tendon in its grasp, 13 inches of tendon being stripped from the muscle and drawn from the arm, hand, and finger. The tendon was still attached to the terminal phalanx of the finger.



At left, x-ray of injured hand. Center, photograph of specimen beside a ruler. Right, photograph of hand after healing.

The finger was given an antiseptic dressing, and the patient was hospitalized for observation and immediate treatment should an infection ensue. No complications developed. The patient had good use of her hand and was dismissed on April 20. She was followed as an out-patient through May and June.

A pathological study, made by Dr. Albert E. Upsher, was reported as followed: "A single specimen is submitted for examination which is identified as the tip of the middle finger. It possibly has been removed traumatically at about the junction of the middle and last or third phalanx. Attached to the tip of the finger, which includes the nail, nail bed, and adjacent tissues, is a tendon which measures  $13\frac{1}{2}$  inches in length. It is perfectly clean all the way up to presumably the attachment at the base of the

muscle, where there are a few reddish fibers of striated muscle group noted. This presumably is the tendon of the flexor profundus digitorum. No sections taken. Specimen to be saved."

The radiologist who made an examination, Dr. E. R. Deweese, gave this report: "The examination of the right fingers reveals a loss of the bone and soft tissues of practically the entire distal phalanx of the right middle finger, only a small residue of the base of the distal phalanx remaining and articulating with the middle phalanx. No fractures of the bones of the middle finger or any dislocations. The ring and index fingers included in the examination showed no abnormalities."

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## Realistic Medical Evaluations

### *Criteria for Employment of the Physically Handicapped*

JOHN N. GALLIVAN, M.D., *Hartford, Connecticut*

One of the predicaments we encounter in our efforts in behalf of handicapped individuals is the habit of tagging such individuals with some sort of medical or quasi-medical terms. The tag may be cardiac, epileptic, amputee, blind, deaf, diabetic, or various combinations of these and other medical or quasi-medical terms. Then, in the face of prejudices which such tags commonly call forth in the minds of laymen and sometimes even of physicians, we ask employers to hire on the basis of abilities and not disabilities. The best method of avoiding this predicament is for physicians and their assistants to keep their medical diagnostic tags to themselves, for their own uses, and to report the results of their evaluations in terms of precisely what efforts the individual can safely perform and what environmental exposures he can withstand.

Someone once said that success in industry requires

the proper blending of men, materials, and machines into a profitable productive relationship with a minimum of waste, wear, and weariness. In a competitive free enterprise system, it can also be said that success depends upon building and maintaining an effective work force through making the fullest use of available skills. This in turn depends upon an effective placement program which aims to have every worker

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**The program of evaluation outlined here does not focus upon persons with physical impairments which can be labeled with medical or quasi-medical tags. Rather it focuses on skills, aptitudes, interests, and similar traits and is geared to the presumption that all reasonable means possible will be utilized to make productive use of those skills. In its day by day efforts to adapt the worker to the job or the job to the worker, it permits absorption of the physically handicapped into the production program as a matter of course.**

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Editor's Note. Although this article was prepared in a style and format suited for consumers of occupational medical services, it will be of value to readers of the JOURNAL in delineating various factors which influence evaluations. Dr. Gallivan is medical director, United Aircraft Corporation, East Hartford, Connecticut. He presented this address at the annual meeting of the President's Committee on Employment of the Physically Handicapped, Washington, D. C., on May 9, 1958.

at all times placed on the job that allows him the best use of his skills and agrees with him physiologically and psychologically.

Selective placement calls for cooperative effort, combining the quite dissimilar skills and disciplines of the social, biological, and physical sciences. The examining physician is part of this placement team, and the closer he blends his efforts with the rest of the team, the more he and that entire team will come to acquire a new point of view which is not basic to the original training in the respective fields.

The physiological evaluation of an individual comes within the province of the physician and his medical co-workers and cannot be successfully handled by persons without medical qualifications. Many purposes can be served by the medical examination and discussion of the findings by the physician with the examinee; but—from the placement standpoint—the medical evaluation should be on the basis of functional capacities and the findings should be expressed in a clear, concise description of just what efforts an examinee can safely perform and what environmental exposures he can withstand.

There are all sorts of functional capacity report forms which can be used. Basically they call for answers to questions such as:

How many hours per workday can the examinee bear the body weight, primarily on the feet in a stationary position? How many hours walking on level surfaces? How many hours going up or down stairs or inclines using the hands and arms only for balance? How much lifting, carrying, pushing, pulling, and for how long? Can he operate hand power tools? ride a tricycle? climb a ladder? be exposed to various types of oils, solvents, acids, alkalis, synthetic resins? How much noise can he be exposed to and for how long at what intervals?

These are, of course, only a few samples of the questions the physician must answer. Nevertheless, they serve to point up the fact that the physician in reporting for placement purposes should avoid medical diagnostic tags and should use numbers or precise terms wherever possible to describe capacities in lengths of time, weight ranges, distances, volumes, concentrations, etc. This is what we mean by the term "functional capacity language."

The physician learns "functional capacity language" as he blends his efforts with safety engineers, industrial hygienists, employment interviewers, foremen, and other members of the placement team. The safety engineers and industrial hygienists use exactly the same language in evaluating the physical demands and hazards of jobs.

As he works as part of the team, the physician learns more than a new language. He learns that

employment interviewers and personnel investigators in a top-flight placement program will select a tentative job or occupational group on the basis of the applicant's skills, aptitudes, intelligence, interests, experience, temperament, honesty, integrity, and similar traits; but they will not concern themselves with the evaluation of the applicant's physical or physiological capacities except in two types of cases:

(1) In the case of alcoholism, narcotics addiction, sexual perversion, or similar medical conditions, the security requirements of contracts may require the personnel investigation section to reject applicants; or

(2) In cases where physiological impairments may have affected the applicant's temperament, aptitudes, interests, previous experience, etc., the employment interviewer may reject the applicant for employment without being aware that physiological impairments have been a material cause for the poor impression and record.

The physician learns further that a successful placement program is geared to the presumption that, when an applicant appears for medical evaluation after the employment office has selected a tentative job or occupational group, the employer—except in the case of the applicants who are vetoed by the personnel investigators—the employer is prepared to use all reasonable means possible to make productive use of that man and his skills. Therefore, when the man's functional capacity is found by the physician to be inadequate to meet the physical demands and environmental exposures of the tentatively selected job, additional steps are taken.

One step is to determine whether the man's capacities can be raised through medical correction or rehabilitation, through additional training, through personal constructive or protective equipment, or through other means. (An example of personal constructive equipment is a hearing aid; an example of personal protective equipment is a noise-blocker or ear defender.)

Another step is to determine whether the physical demands or hazards of the job can be reduced through operational or engineering changes in the job or whether assignment can be made to a group where teamwork can permit interchange of effort to compensate for individual deficiencies. Time spent standing, for example, is among the most frequent of the obstacles which block people from jobs; and yet analysis often reveals that much standing is simply custom and not a job essential. The reduction of lifting, carrying, pushing or pulling not only can be accomplished readily in many cases but also provides extra dividends for management when the change suggested in behalf of an impaired job candidate is found—as it so frequently is—to have application to other jobs



with resultant improvement in economy and efficiency.

Thirdly, there is the step of looking for other job openings which the applicant can fill.

All of these additional steps are greatly facilitated if the physician, in developing his medical evaluation, keeps them in mind, and in reporting his findings includes sufficient information to permit these steps to be brought smoothly into play. In cases where the applicant's functional capacity is not fully adequate to meet all the job requirements, the physician's evaluation is not complete until he has taken part in these additional steps of the employment team.

From what has been said so far, it is evident that I believe that a comprehensive selective placement program for all job applicants and employees is an essential ingredient of the success of modern industry. This program calls for a cooperative effort of persons with dissimilar training and skills. The key person in the evaluation of the physiological qualifications of the applicant or the worker is the physician. While his medical examination findings can serve many useful purposes, the physician, as part of the placement team, should develop and report his placement recommendations in "functional capacity language," and he should take an active part in the consideration of capacities-raising and demands, lowering efforts as the employment team seeks to use every means possible to make productive use of persons with useful skills. His contribution will be most effective when there is a physical demands analysis recorded for every job in the facility involved.

A program of the sort I have outlined does not focus upon persons with physical impairments which can be labeled with medical or quasi-medical tags. Rather it focuses on skills, aptitudes, interests, and similar traits and is geared to the presumption that all reasonable means possible will be utilized to make productive use of those skills. In its day by day efforts to adapt the worker to the job or the job to the worker, it permits absorption of the physically handicapped into the production program as a matter of course.

Although I have urged that the physician avoid the use of medical diagnostic terms in making reports and recommendations concerning individuals, these terms do serve a useful purpose in the development of statistical analyses carried out to measure the effectiveness of a program. For example, in the Pratt and Whitney Aircraft Division of the United Aircraft Corporation, the world's leading aircraft engine manufacturer, an analysis was made of the medical examination tabulating file as it stood on the first day of October 1956. In this analysis, a count of the hourly or shop employees according to the primary disorder, if any, showed that of a total number of 27,253

hourly or shop employees, 10,472 or 38.4 per cent had, at the time of the latest available medical examination, at least one defect of sufficient extent to cause some impairment of functional capacity. A similar study made in 1951 showed 37.5 per cent, and this proportion is typical of the past 10 years. The rate of employees in this division with medical disorders causing some functional impairment was found in studies made at various times during the 10-year period, 1948 through 1957, to run between  $2\frac{1}{4}$  and  $2\frac{3}{4}$  times as high among hourly or shop workers as the rate of salary or office workers.

The percentage of employees in this division with medical disorders causing some functional impairment was not the result of any concerted effort to search out and employ the so-called physically handicapped; but was the result of consistent application to all job candidates all of the time of the principles outlined above. Over the 10-year period, 1948 through 1957, excluding applicants who of their own volition did not show up to complete the employment process, 96 per cent of the applicants the employment section selected on the basis of skills and personal qualifications, other than physical qualifications, were signed into work. Over two-thirds of the 4 per cent who were not signed into work were persons rejected by the personnel investigation section. Placement failures chargeable to the health and safety section consistently ran under 2 per cent in each of the 10 years and for the entire period.

In a large facility such as this where proportionately more than twice as many shop employees show medical disorders causing some functional impairment as the salary or office workers show, a comparison of absenteeism records is of some interest. The male shop employee is absent about 25 per cent more frequently than the male office employee, and the female shop employee is absent about 33 per cent more frequently than the female office employee. In both population groups, the frequency of female absences runs slightly more than twice as high as the frequency of male absences. However, among hourly employees only 27 per cent of the absences run for more than four days; whereas, among salary or office workers slightly over 50 per cent of the absences run for more than four days. Because non-occupational sickness and accident absenteeism benefits are payable only for absences of four days or more, the average salaried employee files a significantly higher number of claims and collects a significantly greater amount of money under this program than does the average hourly or shop employee.

These facts permit no direct inference as to the rate of absenteeism of physically impaired employees as compared with the rate of absenteeism of physically

unimpaired employees; but one can say that in this particular facility the hourly population, with a much higher percentage of physically impaired workers, shows a better record with respect to non-occupational sickness and accident absenteeism insurance experience than the salary or office population with its much lower percentage of physically impaired workers.

In the case of workmen's compensation injuries, it is logically to be expected that hourly or shop employees would show a much higher rate than salary or office employees.

The cumulative lost time occupational injury frequency rate for this particular division for the 10-year period was 4.22 cases per million man-hours worked. The highest was 5.9 in 1953 and the lowest was 3.2 in 1949. A million man-hours represents about 500 man-years of work. Therefore, a lost time occupational injury rate of 4 represents one lost time occupational injury in 125 man-years of work. The occupational injury record just cited is not remarkable but it is respectable, and it was achieved in a large manufacturing facility where more than one out of every three hourly or shop employees could be classified as physically impaired.

The above figures and statements represent only a very small portion, of course, of the data which might be cited to illustrate the fact that the type of program outlined in this paper is not a theoretical approach based primarily on humanitarian considerations but is a realistic approach based on sound business considerations. If it were to be followed universally, there would be no need to use the highly ambiguous term "physically handicapped."

The final physiological evaluation of a job applicant or a worker must obviously fall to a physician. If the physician will learn some of the techniques of the specialty of occupational medicine, if he will develop and report his placement evaluation in "functional capacity language" and avoid the use of medical diagnostic tags in making placement recommendations, if he will work as part of the employment team taking part in the consideration of capacities-raising and demands-lowering efforts as the employment team seeks to use all practical means to make productive use of the man and his skills—in short, if he will follow the principles outlined above, his medical evaluation will be realistic.

92 Farmington Avenue  
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# Kansas Medical Society

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**100th Annual Meeting, Kansas Medical Society**

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# Leriche Syndrome

## *Report of Two Cases Occurring in Brothers*

A. W. ROBINSON, M.D.; C. L. HENRY, M.D.;

A. V. ARMS, M.D., and M. DODGE, M.D., *Kansas City*

### Introduction

Since the first description of thrombo-occlusive disease of the aorta and its bifurcating iliac branches by Leriche in 1940<sup>1</sup> and the first homologous graft of the abdominal aorta by Oudot<sup>2</sup> in 1951, a surprisingly large number of cases have been surgically corrected. The occurrence of Leriche syndrome in siblings is unusual, and our recent experience with successful surgical management of this disease in two brothers seemed worthy of presentation.

### Report of Case 1

H. H., a 43-year-old shoemaker, had noted progressive intermittent claudication in the thighs and both lower extremities of 11 years' duration. At the time of evaluation in July 1955, he had experienced pain on walking a distance of two and one-half to three blocks. In 1950 at age 38 he was diagnosed elsewhere as having coarctation of the aorta. In February 1955 he had suffered a cerebral vascular accident with left hemiparesis which gradually cleared. He had noted frequent occipital headaches of six years' duration.

**Physical examination:** The blood pressure in the right arm was 270/140 and in both legs 110/95. Pulse was 100 and regular. Funduscopic examination revealed marked A-V constriction with tortuosity and focal arteriolar constrictions. A grade II apical systolic murmur with extension over the lower sternum was present. Femoral pulsations were greatly diminished bilaterally.

**Laboratory and x-ray examinations:** Routine complete blood count and urinalysis were within normal limits. Mosenthal kidney concentration revealed a specific gravity 1.013 to 1.022. The electrocardiogram showed a left ventricular strain pattern. Chest x-ray was considered within normal limits with equivocal evidence of rib notching.

**Hospital course:** A left thoracotomy was performed, revealing a normal thoracic aorta without evidence of coarctation. It still was felt this patient suffered from aortic obstruction because of the pres-

sure gradient between the upper and lower extremities. Therefore, following convalescence, a trans-lumbar aortogram was performed which established the diagnosis of Leriche syndrome with complete block of the abdominal aorta just distal to the renal arteries at approximately L-1 (Figure 1). The right kidney appeared hypoplastic. Interim management of this patient consisted of hypotensive therapy, and he was released to go home with instructions to take Apresoline 400 mg. and Rauwiloid 8 mg. daily.

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**The occurrence and successful surgical management of Leriche syndrome in two brothers are reported. The differential diagnosis between Leriche syndrome and coarctation of the aorta is discussed.**

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Figure 1. Case 1, H. H., aortogram showing complete block of the abdominal aorta just distal to the renal arteries.

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Second hospital admission: When he was readmitted to the hospital in January 1956 he continued to complain of bilateral thigh and calf claudication and reported two episodes of transient paroxysmal tachycardia. Physical examination at this time revealed the blood pressure to be 295/150 in both arms. Pulse was 120 per minute.

Laboratory and x-ray examination: Hemoglobin 15 gm., red blood count 5.3 million, urinalysis, specific gravity 1.008, albumin 1 plus, non protein nitrogen 37 mg. per cent, fasting blood sugar 104 mg. per cent, serum sodium 143 mEq./l, serum potassium 3.5 mEq./l, serum chlorides 94 mEq./l. Retrograde pyelography revealed moderate hypoplasia of the right kidney, and no indigo carmine appeared from the right ureteral orifice following intravenous injection. An electrocardiogram was interpreted as evidence of marked left ventricular strain. Repeat chest x-ray was not remarkable.

Hospital course: On February 1, 1956, exploratory laparotomy was carried out with confirmation of occlusive disease involving the terminal aorta and extending from just below the renal artery origin down to and including the aortic bifurcation. The aorta at this level was cord-like and non-pulsatile. The right renal artery was totally occluded and the right kidney was grossly contracted. A right nephrectomy was performed. Proximal and distal clamps were then placed, and resection of the terminal aorta and bifurcation were accomplished with subsequent placement of an aortic bifurcation homograft. Proximal and distal endarterectomies were performed prior to placement of the graft with satisfactory retrograde flow being established. Continuous 5-0 arterial suture was used for vascular anastomosis.

Grossly the resected aorta revealed thickened, calcific, hyalinized and dense sclerosis involving all layers. The right kidney weighed 80 grams and showed a slightly granular surface with an extremely thin cortex on section. There was an associated marked arterial and arteriolar nephrosclerosis.

During the immediate postoperative period the blood pressure ranged from 160/95 to 220/100, and bilateral femoral pulsations of good quality were present. The patient was digitalized because of persistent tachycardia and dismissed from the hospital on February 18, 1956. A follow-up visit on April 18, 1956, revealed blood pressure in the arms to be 170/100, legs 110/70. He was again seen on May 28, 1958, at which time his blood pressure was recorded as 170/90 in the arms, 110/90 in the legs. Good femoral pulsation was evident, peripheral lower extremity pulsations absent. Laboratory examination revealed normal urine, complete blood count, electro-

cardiogram, and chest x-ray. The previous left ventricular strain pattern had been completely reversed. He was working full time in his former job capacity. He complained only of weakness in the left upper extremity and mild blurring of vision since his cerebral vascular accident in 1955. Since his surgery he has had no further claudication.

## Report of Case 2

J. H., a 56-year-old shoe factory worker, had noticed progressive intermittent claudication of the hips and thighs of five years' duration, more pronounced on the left side. Intolerance to cold was noted in both feet, again predominately on the left. He smoked one package of cigarettes daily. He had been informed elsewhere one year before that a mild elevation of blood sugar was present, and he had followed a carbohydrate restrictive diet. Impotence had been evident for approximately one year.

Physical examination: Blood pressure was 140/90, pulse 85 and regular. Fundoscopic examination was negative. Marked cyanosis of all toes of the left foot and of the right first toe was present. Femoral and all peripheral pulses of the left lower extremity were absent. In the right lower extremity the femoral pulse was markedly diminished, and the lower right peripheral pulsations were absent. Marked pallor and rubor were demonstrated in the elevation-dependency test in both feet. Venous filling time in the legs was delayed, 35 seconds on the right and 40 seconds on the left.

Laboratory and x-ray examinations: Routine urinalysis and complete blood count were within normal limits, fasting blood sugar on two occasions was 154 mg. per cent and 119 mg. per cent, non protein nitrogen 38 mg. per cent, total cholesterol 197 mg. per cent, cholesterol esters 56 per cent, electrocardiogram and chest x-ray normal. Trans-lumbar aortogram revealed a complete obstruction of the abdominal aorta immediately distal to the point of origin of the left renal artery (Figure 1).

Diagnoses of thrombo-occlusive arterial disease of the aorta and mild diabetes mellitus were made.

Hospital course: On February 19, 1958, exploratory laparotomy was carried out and the abdominal aorta surgically exposed. Extensive complete occlusive disease of the aorta was encountered, extending from just below the renal arteries down to and including both iliac vessels. Proximal and distal clamps were applied, and the aorta and bifurcation were resected. Endarterectomy was carried out in both iliac vessels and the proximal aortic segment. Free retrograde bleeding was obtained from the iliac vessels.

Gross and histologic examination revealed a greatly thickened calcified atherosclerotic aorta with the lu-

men completely filled with laminated partly calcified thrombus.

Postoperatively, normal color gradually returned to the feet and legs with associated femoral pulsations bilaterally. His recovery was uneventful, and he was dismissed from the hospital on March 5, 1958. The last checkup visit on April 18, 1958, revealed normal circulatory status of the lower extremities. The patient has returned to full time work in his previous capacity.

## Discussion

Both of these men with Leriche syndrome presented classic histories and findings of bilateral claudication of hip and thigh pain with associated absence or diminution of femoral pulsations. Trans-lumbar aortography firmly established the diagnosis in both instances.

It is known that atherosclerosis is predisposed to develop in certain families and that the more extensive lesions often appear at the same site. In the siblings reported here the entire lower abdominal aorta was occluded, extending proximally to the level of the renal arteries.

The Goldblatt phenomenon is well demonstrated in Case 1 (H. H.) by the remarkable drop in systemic

blood pressure and clinical improvement following the removal of the ischemic contracted kidney.

The differential diagnosis between thrombo-occlusive disease of the aorta with associated hypertension and coarctation of the aorta can at times present a problem, as evidenced by the initial confusion in the diagnosis of Case 1 (H. H.). Co-existent hypertension with Leriche syndrome has been reported in from one-fourth to one-third of large case series. Brachiocephalic hypertension associated with a pressure gradient between upper and lower extremities due to aortic obstruction may appear in both entities and, therefore, other criteria must be relied upon to differentiate the two. Intermittent claudication present in most patients with Leriche syndrome is recorded in five per cent of patients with coarctation. Clinical evidence favoring coarctation would include vigorously pulsating collateral vessels, interscapular systolic murmur, and x-ray findings of diminished aortic knob, rib notching, and soft tissue prominence of the left subclavian artery. Coarctation of the aorta is, of course, a congenital malformation and is usually manifest clinically within the first three decades of life, whereas acquired thrombo-occlusive aortic disease usually appears at a later time. If doubt exists as to the diagnosis or if surgery is contemplated, aortography should resolve the conflict.

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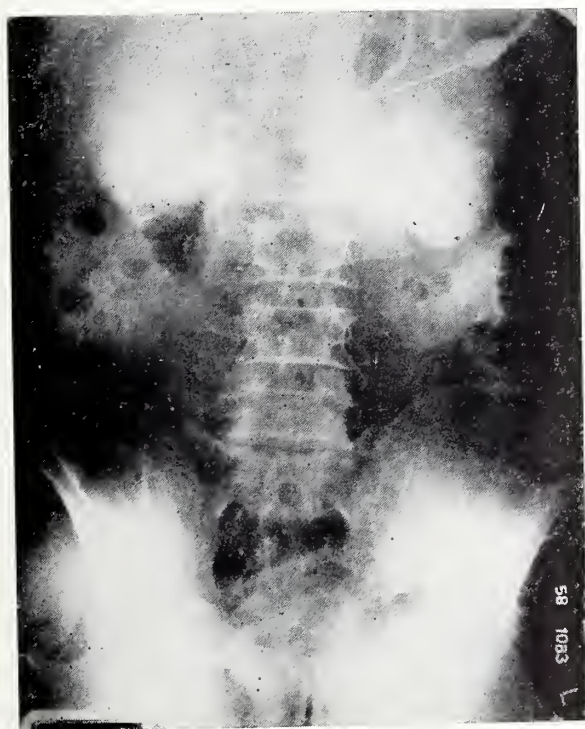


Figure 2. Case 2, J. H., aortogram showing complete block of the abdominal aorta just distal to the renal arteries.

## PRESIDENT'S PAGE

DEAR DOCTOR:

Last month Mr. Ebel and your president attended the Public Relations Meeting sponsored by the A.M.A. Mr. Leo Perlis, representing the AF of L-CIO, presented labor's views on health care. He made it quite clear that labor regards organized medicine as a doctors' labor union which exists to further the doctors' interests. This was not a criticism—it was a plain statement of what he believed to be a fact. As such, he respected organized medicine and proceeded to deal with it as a bargaining agency representing the doctors' interests.

Now this was not surprising, coming as it did from one whose life work is along such lines in behalf of labor. The thing that amazed us was that many of the others in attendance, medical society executives, etc., seemed to accept his interpretation without protest.

Perhaps your president is wrong. Perhaps the chief function of organized medicine is to serve the physician. But we will contend that organized medicine and its component physicians have always existed and do exist primarily to serve the patient and the public health.

Such service has enjoyed, and will continue to enjoy, public confidence and respect just so long as the doctors and their organizations keep it that way. In dealing with economic and political forces it behooves us to keep our public service and obligations ever in the foreground. Most of the groups that strive to preserve the American way of life represent interests that may properly be termed selfish. We, as physicians, have a unique opportunity as defenders of the faith—the faith in the brotherhood of man and the personal dignity of the individual. We must not permit our antagonists to crowd us into the corner of self interest.

*Fraternally,*

A handwritten signature in cursive script that reads "Thomas P. Butcher M.D." The signature is fluid and elegant, with a large initial 'T' and a stylized 'B'.

*President*



## EDITORIAL COMMENT

### Radioactive Contamination

*Editor's Note. This editorial on protection against radioactive contamination in the laboratory was prepared by Dr. G. R. Germann, chairman of the Public Health Committee of the Kansas Radiological Society, as a follow-up on his article on radiological safety in the September issue of the JOURNAL. Dr. Germann is a radiologist at the University of Kansas Medical Center.*

In a previous editorial we commented on general protection from radiation and how physicians can protect themselves and their patients. However, with the increasing number of isotope laboratories, certain rules for protection here would also seem in order.

If the laboratory is an active one, it seems almost inevitable that contamination will occur at some time. Therefore, the person in charge of the laboratory should be accident conscious, and his entire routine should be such that only minor contamination can occur so that control will be relatively easy. One of the easiest and most effective steps is to see that all "work-tops" are covered with absorbent disposable material. Diaper material or sheet wadding serves very well.

However, should contamination occur, it will involve the physical plant of the laboratory, or the person in the laboratory, or both. The physical area is easily decontaminated with absorbing paper followed by soap and water which is also removed with absorbent paper. It is also very helpful that the non-radioactive chemical can be used on the area of contamination. For instance, sodium iodide can be concentrated on the area where  $I^{131}$  may have been spilled, and this will aid in removal of radioactive material from most surfaces. After cleaning, the area should be surveyed with a counter.

Contamination of the skin is a more serious matter. This is also a major problem in fallout where the total body may be in contact with the radioactive material as compared to a relatively small area in laboratory accidents; here again the first step is in cleansing the skin contaminated. The use of soap and water is good, but many mild soaps do not emulsify the normal fatty material in the skin which has been contaminated. Tincture of green soap, for scrubbing, is good, but the skin should not be broken since this would facilitate absorption. Detergents or actually the waterless cleansers, such as Vibra-Clean, are probably the most thorough cleansers. Waterless cleansers would be especially valuable if there were

question of water contamination in addition to skin contamination. Again, in personal decontamination, the value of the non-radioactive element as a surface absorbing substitute for the radioactive material should not be overlooked. We have seen sodium iodide do an excellent job removing  $I^{131}$  from around the base of a fingernail which had become contaminated with  $I^{131}$ .

The inhalation or ingestion of radioactive materials from the laboratory is a preventable accident. No eating, drinking, or smoking can be permitted in the laboratory at any time. The use of rubber gloves also prevents hand to mouth contamination. Frequent cleansing and good general technique are of course paramount.

Should oral ingestion occur, treatment would depend on the chemical involved.  $I^{131}$  ingestion would be treated with iodine and anti-thyroid drugs.

Prevention of accidents is always the best protection. Experience is probably the best teacher here. Certainly students must work only with low activity until they are familiar with tools and techniques.

However, accidents should not produce panic and reasonably simple methods can be used to decontaminate areas and persons.

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### Profile of the Practicing Physician

The Metropolitan Life Insurance Company sponsors many programs which have an indirect effect upon the health of the nation—their educational advertisements in nationally distributed magazines, their compilation of statistics on morbidity and mortality, their professional and lay publications.

An interesting example of the Metropolitan's service to medicine can be found in current issues of the *Health Bulletin for Teachers*, a publication now in its 27th year. For this school term, the theme of the pamphlets will be "Health Education and the Physician." If teachers can convey to their students the spirit emanating from such a publication, medicine will be the beneficiary. The text of the first bulletin, entitled "Profile of the Practicing Physician," is reprinted below.

*"Fifty years of service to medicine! As I look back and consider other careers that I might have chosen, I sometimes feel that I would settle for a less arduous calling. But on more sober thought, I know there could be but one life for me—the life of a doctor."*

These words were spoken by a physician whose name is all but unknown beyond the borders of the community which he has served for half a century. Yet, this simple quotation is an appropriate prelude to our "Profile of the Physician."

In the first place, it bespeaks the deep devotion which most physicians feel for the fraternity of medicine. In the second place, it explains why the great rank and file of doctors make medicine such a vital, comforting, and reassuring thing in the lives of the people they serve. It is your doctor and mine—using in his daily rounds the hard-won knowledge of the masters, upholding in his daily life the ethics and traditions of the healing art—who makes the *practice* of medicine so beneficent a science.

What, then, of the true physician—his skills, his ideals, his ethics? How does he come by them? What personal traits make him worthy of the title, Doctor of Medicine? What new missions beckon him? And, finally, what are his rewards?

### **The Making of a Physician**

Sir William Osler, that immortal physician, once said that "work is the master word in medicine." It begins on the very first day of the doctor's training and it increases each day thereafter. Preparation for the practice of medicine, perhaps more than for most other human undertakings, is a combination of unending work and study.

Various experiments have been tried to make the academic training of physicians less burdensome. But these plans have only demonstrated that there can be no shortcuts in the making of a physician. In fact, authorities generally agree that the long and difficult years of preparation—including two to four years of premedical study—are necessary if we are to continue to have physicians educated in the best traditions of both the humanities and the sciences.

Actually, education for a scientific career may well begin in childhood when a youth becomes absorbed in the world of growing things. Or, it may start in a high school biology laboratory when the wonders of the more primitive forms of life unfold before youthful eyes. It would be a splendid thing if all of us—especially parents and teachers—could detect the very earliest stirrings of scientific curiosity in the young mind and encourage them from the outset.

Fortunately, the "raw materials" of which physicians are made are sometimes plain to see. We should watch for a genuine interest in "the how" and "the why" of things. We should watch, too, for a more than ordinary curiosity about the structure and functions of the human body. (What makes blood red? What makes the heart beat?) And we should be alert to the young person whom others of the same age instinctively trust. A noted medical educator has cited this as "a good sign of the budding doctor."

As to the physician's formal education, most medical schools still divide the four-year course into pre-

clinical and clinical halves. The first two years of the prospective doctor's studies center upon the normal structure and functions of the human body and the diseases that beset it. These are the years of books and microscopes and laboratory experiments devoted to learning the architecture of the body and its "biological wisdom." There is an increasing trend in many schools, however, to provide students from the start of their training with experience in family and community health problems.

In the last two years, the student passes from the classroom to the hospital wards and clinics where he begins to breathe the atmosphere he has longed for. There, under the guidance of professors skilled in various specialties, he examines and treats patients—and sharpens his powers to observe and deduce, sometimes with the aid of diagnostic instruments, and always with eyes, ears, and hands which will become increasingly sensitive to manifestations of health and disease.

Although the medical student becomes well versed in the marvelous complexity of the human body and its responses to an incredible number of insults, the aim of the medical school is not to produce a full-fledged doctor. Nor do one or two more years of hospital internship following graduation produce the complete physician. Indeed, his schooling and hospital experience give him only a good grasp of the fundamentals of medicine. And upon this basic knowledge he will build for the rest of his days because medicine, like so many other fields, is never static.

### **The Motives for Medicine**

Medicine is no easy path to great riches. The motivations for embarking on a career in medicine are many. Perhaps one derives from an inborn love of science as applied to life and health. And the person who experiences this love simply cannot contemplate any other mission. Medicine may lure a few who see in it the opportunity to win fame by doing the spectacular—to performing seemingly impossible operations, for example, or discovering the cure for cancer. Many medical careers are also shaped by family traditions or by the desire to follow in the footsteps of a physician whom one has admired. Though the motivations for choosing medicine as a career do vary, the best medical students and the best doctors are surely those who have a genuine interest in science, an equally genuine interest in people, and a sincere desire to serve their fellow men.

### **The Character of the Physician**

While education, training, and experience are basic requirements for a well-rounded physician, certain



personal qualifications for the profession are no less important. Dr. James A. Miller has written: "There is need for those other factors which are moral, ethical, or even spiritual to complete the equipment of the true physician. These factors are the imponderables, but they are none the less the essentials. They determine the quality of the individual in relation to his patients, to his fellow practitioners, and above all to his own inner self."

Since medicine was born of the sympathy of man for man, the physician if he is to be a true physician, should have a great capacity for sympathy, the courage to act when delay could mean the difference between life and death, the ability to influence people for their own good, and a reverence for life. In addition, the physician needs good judgment, patience, optimism, equanimity, honesty and, most important, a warmth and tenderness of personality that will bring confidence and calm to distraught individuals. Dr. Hans Zinser observed that "when such qualities come together in an individual who chooses the calling of Medicine, then we have the great physician."

### **The Physician's Ethics**

More than three centuries before the birth of Christ the physician's way of life was spelled out in the Oath of Hippocrates. The maxims and ideals of conduct which this noble document specified are still subscribed to by physicians all over the world. It could serve as a guide to good conduct in all walks of life. To cope with changing times and conditions, physicians have also established "codes of ethics." In the medical sense, ethics is defined as "the science of values in relation to the conduct of life as a whole." Among many items found in a recent ethical code of the American Medical Association, one of the most altruistic is that during disasters and epidemics the physician will continue his work without regard for his own health or safety. It is significant that the oaths, codes of ethics, and rules of conduct to which physicians are bound are formulated primarily for the welfare of patients and secondarily for the continuing good name of the medical profession.

### **How the Physician's Practice Changes**

As the world changes, so does the practice of medicine. Years ago, the physician was primarily a family doctor possessed of deep understanding and practical wisdom, but with no more than a handful of really effective weapons against disease. Now the doctor has a wealth of amazingly effective therapeutic agents and improved techniques for the diagnosis, prevention, and treatment of diseases.

It appeared for a time that rapid strides in the science of medicine would submerge the ancient art of

the physician. Fortunately, however, the art of medicine has been saved by the physicians themselves, because they realize that they need to know people and their worries and problems almost as well as they know physical signs and symptoms. Dr. Harvey Cushing underscored this years ago when he said: "A warm, friendly relation with a patient may often yield information more valuable to the physician than anything revealed by a laboratory test."

To bring the art of the physician to its fullest flower, many medical schools now assign their first-year students to small groups of patients selected for family care. The student is introduced as a doctor in training to "his family," the patients are informed that he will *not* treat them, but will act as an advisor on problems of health. Thus, the student learns at the outset of his medical career that illness can be caused or complicated by worries over the family budget, the morning's headlines, or whether Johnny will make it through high school.

Progress in medicine as a science has, however, brought about many changes in the physician's practice. Since no one man can master the whole of modern medicine, specialists have come to play a larger part in the care of the sick. There are at present 15 or more "Specialty Boards" to certify physicians capable of pursuing the specialty of their choice. To be eligible for a specialty certification, the physician must be a graduate of an approved medical school and must have had at least five years of postgraduate training and experience before admission to a rigid written and oral examination. The specialist, in cooperation with the general practitioner, has greatly improved the treatment of many illnesses.

Physicians are making increased use of hospitals where they find a concentration of skills, special knowledge, and facilities available for the benefit of patients. Medicine, then, is becoming more and more a matter of teamwork.

Greater freedom from many time-consuming practices of the past allows the physician of today to devote more of his efforts to preventive medicine. In fact, more people than ever before are turning to him for health counseling. We look to him for advice on nutrition, exercise, rest, relaxation, accident prevention, and other matters that affect health. Mental and emotional disorders which were once either endured or charged off to personal peculiarities are now brought to the physician's attention far more often than in the past.

### **New Roles for Physicians**

The physician is no longer "isolated on an island of disease with his patients." His experience and knowledge are being brought to bear on a wide vari-



ety of affairs ranging from social issues at the community level to matters that are international in scope. A call to physicians to exert themselves for the betterment of their communities was recently sounded by Dr. David B. Allman, President of the American Medical Association. He urged them to abandon "the ivory tower of professional detachment" and step more actively into community affairs. It is interesting to note in this connection that physicians of earlier times played prominent roles in many activities beyond the scope of medicine. For example, among those who signed the Declaration of Independence, five were physicians.

Evidence of the physician's expanding role is seen almost everywhere—in public health movements, in the formulation of laws to safeguard health, in the promotion of improved social services, in the progress of industrial health, to mention a few.

Physicians are proving themselves to be effective ambassadors of good will for the United States and Canada in foreign lands. Since disease knows no bounds, the physician and his co-workers are "ambassadors" whom we can send forth without doubt that they will be acceptable. This has already been demonstrated by the World Health Organization in its programs for malaria control, better nutrition and sanitation, health education, and accident prevention.

We live at a time when some new and exciting chapters are being added to the history of the human race. For instance, we are now well into the Atomic Era and the Age of Space is dawning. Both of these new ventures pose problems to challenge our best medical minds. Our health and safety in an atomic world may well concern the physician no less than the communicable and chronic diseases with which he has long dealt. Indeed, the physician already occupies a key position in the public health aspects of atomic energy. And the conquest of space will depend largely on the solution of problems in human physiology and psychology. The physician's contributions to space medicine may be of immediate practical value to doctors in current practice since so much is being learned about how the human body responds to stress, strain, and unaccustomed sensations.

### You and Your Physician

The medical profession is often subjected to criticism—and sometimes rightfully so—for certain shortcomings. Yet, most of us in our individual association with our physician find far more to admire than to censure. We recognize that he, having made a study of human behavior, knows a great deal about "what makes us tick." We recognize, too, that his profession has made an enormous contribution to the welfare of humanity.

There are other, if lesser, reasons for the esteem

in which we hold the physician. We admire him for the responsibility he carries, the trusts he will not betray, and the discipline he enforces upon himself, often at the risk of his own health and frequently at the expense of his family life.

What are the rewards of a medical career? Perhaps the one that the physician values most is the knowledge that his neighbors look upon him as an indispensable member of the community. He values, too, the privilege of intimate association with all kinds of people, the satisfaction of bringing new lives into the world, restoring the sick and injured to health, preventing diseases and accidents, and easing pain in hopeless illnesses. Such enduring rewards are known only to the physician dedicated and devoted to medicine, both as a science and an art.

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### Nutrition and a State Medical Society

The ultimate goal of all research and clinical investigation in nutrition is the improvement of the health of the people. To this end several progressive state medical societies have established programs which vary in scope and objectives but which have as their fundamental philosophy the "practical application" of our newer knowledge of nutrition.

One of the leading examples of such a progressive viewpoint may be found in the report of the Commission on Nutrition of the Medical Society of Pennsylvania (*Pennsylvania M. J.* 60:1113, 1957). The Commission's report may well be studied by appropriate commissions of other state medical societies for it represents an admirable example of what can and should be done.

In brief, the Commission has had two objectives: (1) The stimulation of interest in clinical nutrition at state and county levels; and (2) the dissemination of factual information on nutrition to both practicing physicians and the laity.

Among the numerous accomplishments of the Committee are the following:

A number of editorials on various aspects of applied nutrition appeared in the state medical journal.

Three exhibits were presented at the annual sessions of the state medical society. These dealt with obesity, electrolytes, and salt-free diets.

A Coordinating Committee was established with representatives from city, state, and health medical societies, dental societies, state nurse organizations, etc. This Committee undertook a survey of the extent of nutritional training in hospitals. It was learned, not unexpectedly, that most hospitals offer little or no training in nutrition to interns and residents. The great majority of institutions, however, expressed a desire for a manual on standard therapeutic diets for

both reference and teaching purposes. As a result, therefore, the Coordinating Committee prepared a manual of standard therapeutic diets which apparently has met with considerable enthusiasm state and nationwide. Copies of the manual have been distributed free of charge to senior medical students of the six medical schools in Pennsylvania.

As part of an education program, the State Nutrition Commission organized various symposia. These were held at State Medical Society meetings, and in cooperation with the National Vitamin Foundation, and with the Philadelphia County Medical Society.

The Commission has also urged the establishment of nutrition clinics throughout the state and supported a pioneering nutrition clinic now in operation at the Philadelphia General Hospital.

In cooperation with the Dietetic Association, a program will be prepared for the laity.

The Commission cooperated with the Pennsylvania Heart Association in the preparation of a manual on salt-free diets for free distribution.

The Commission also prepared a program of vitamin and other nutritional supplementation for patients under state public assistance. This doubtless will save the taxpayer a considerable amount of money.

The writer has had an opportunity to see a proposal for the establishment of a Division of Nutrition within the Department of Public Health of the City of Philadelphia. Because it is felt that this may be of interest to some of our readers, the following is a brief summary of this proposal.

The purposes of such a Division of Nutrition within a City Department of Public Health are (1) the promotion of better public health through research and special clinics; (2) the prevention of diseases arising from public ignorance of this field; and (3) direct participation in programs both in prenatal clinics, maternal nutrition studies, and school nutrition projects; and finally (4) rehabilitation of those who are in medical need from the public health standpoint, such as obesity, nutritional anemia, diabetes, etc.

The recommended organization would be located in a large city hospital. The staff would consist of a director, three physicians, two dietitians, a psychiatrist, a laboratory technician, two social workers, and a clerk. A number of laboratory studies would be performed including, in addition to routine determinations, analyses of vitamin C, urinary thiamine, urinary riboflavin, and electrolytes.

The Nutrition Division could plan courses for members of the Department of Public Health, such as public health nurses, dietitians employed by other state and city agencies, general physicians, and school

physicians. Furthermore, this division could furnish consultants to other departments within and outside the Department of Health, would engage in the nutrition and education in medical schools and hospitals, help improve dietary practices in various state institutions, and advise various industrial hygiene divisions.

It is clear that a great deal may be offered by city- and state-organized medicine in improving the role of nutrition as a medical science and as an adjunct toward the health of the public.

A special commendation should be made to the Commission on Nutrition, State of Pennsylvania, under the chairmanship of Dr. Michael G. Wohl, whose members include Drs. T. E. Machella, R. E. Olson, H. N. Seiple, J. N. Seitchik, P. L. Shallenberger, Paul C. Shoemaker, J. M. Strang, and C. W. Wirts, Jr.

It is hoped that through these means some of the progress in clinical nutrition can be brought to a more practical application to the health of the people.

—S. O. Waife, M.D., *American Journal of Clinical Nutrition*, July-August 1958.

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### Doctor Martin Heads Board of Health

Dr. Geoffrey M. Martin, former director of maternal and child health for the Kansas State Board of Health, Topeka, became executive secretary of the Board last month, succeeding Dr. Thomas R. Hood, who went to New York to become associate director of the American Public Health Association.

Dr. Martin, who received his medical degree from Tulane University, also holds a master's degree in public health from Harvard. He served in the Navy during World War II, after which he became assistant in pediatrics at Johns Hopkins Medical School. His first work in Kansas was in Cowley County.

Dr. Patricia Schloesser, who has been a part-time pediatric consultant with the Board since 1953, has been appointed director of the division of maternal and child health.

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### Pediatric Society Meeting

The annual meeting of the Kansas State Pediatric Society was held at Emporia on Saturday, September 6. A scientific program was presented, and officers for the coming year were elected at a business session. Those chosen are: president, Dr. Hilbert P. Jubelt, Manhattan; vice-president, Dr. Thomas C. Hurst, Wichita; secretary-treasurer, Dr. William H. Crouch, Jr., Topeka.

# Clinicopathological Conference

## *Acute Renal Failure, Convulsions, Hematemesis, Hypertension and Vividialysis*

### Case Presentation

A 63-year-old white housewife was admitted to KUMC for the first time on February 1, 1957 complaining of oliguria for two days.

Five days before her admission to this hospital she slipped and fell, sustaining an intertrochanteric fracture of the left hip for which she was hospitalized elsewhere. Two days before admission here her hemoglobin was 68 per cent, and at that time she was given one unit of whole blood. A Smith-Petersen nail was inserted under spinal anesthesia, and her postoperative condition was considered good. At 2:30 p.m. of the same day, however, she complained of pain in the back and neck, and at 6:00 p.m. she became unconscious. Her blood pressure was not obtainable, and her extremities were cold. She was given dextran and levarterenol (Levophed) in 400 ml. of saline. Her blood pressure came up to 120/70, and she regained consciousness. Following that she was given 500 ml. of whole blood, 1000 ml. of dextran and levarterenol in saline, and 1000 ml. of 5 per cent dextrose in water, and her blood pressure rose to 162/90. She received a total of 3700 ml. of fluid following surgery, and during the next 48 hours her urinary output was 163 ml.

On February 1, 1957, she was brought to this hospital by air ambulance, arriving at 8:00 p.m. She had been told that she had low grade hypertension, but she denied having been ill. She apparently had had no other significant previous illness. Her mother died of cancer of the uterus; her father died of pneumonia.

The patient was a well developed white woman, conscious and cooperative, with a urinous odor to her breath. The head, eyes, ears, nose, throat, and skin were negative. The neck was supple, no thyroid was palpable, and there was no adenopathy. Her admission blood pressure was 170/90; pulse rate, 84, with a normal sinus rhythm. The PMI was in the fifth intercostal space to the left of the mid-clavicular line. Fine moist rales were heard throughout both lung fields. Bowel sounds were present,

and no abdominal organs were palpable. There were bilaterally equal grade III deep tendon reflexes. The ocular fundi revealed grade I to II arteriosclerotic changes. There was a cast on her left leg.

The specific gravity of the admission urine specimen was 1.010 with an acid reaction, a trace of albumin, and no sugar. There were 15 to 20 pus cells, 40 to 50 red blood cells, and occasional granular casts per high power field. The white count was 16,750 with 93 per cent polymorphonuclears, 4 per cent lymphocytes, and 5 per cent monocytes. The hematocrit was 50 ml., and the hemoglobin was 15.6 gm. per cent. The serum sodium was 136 mEq/L; potassium, 4.6 mEq; chloride, 99 mEq; calcium, 3.9 mEq.

Shortly after admission she had a grand mal seizure which was controlled by intravenous magnesium sulfate. On February 2 the blood urea nitrogen was 80 mg. per cent; creatinine, 5.8 mg. per cent; fasting blood sugar, 91 mg. per cent; carbon dioxide, 16.4 mEq/L; serum sodium, 136 mEq; potassium, 4.7 mEq; calcium, 3.6 mEq; phosphorus, 3.4 mEq. The sedimentation rate was 16 mm. in 60 minutes.

Her fluid intake was restricted to 20 ml. on February 2, and on February 3 she took no fluids. On February 4 her blood pressure dropped from 170/90 to 150/70 and remained at this level until February 6, gradually rising again to 170/70 on February 7.

She was started on a protein- and potassium-free, high caloric diet consisting of carbohydrates and fat. Calories were supplied by butterballs and sugar candy, but she became nauseated and her caloric intake was poor.

The blood urea nitrogen gradually rose to 131 mg. per cent on February 3; 161 and 206 mg. per cent on February 5, and 225 mg. per cent on February 7. The creatinine rose steadily to 14.5 mg. per cent on February 7. The carbon dioxide combining power decreased daily, and on February 8 it was 10.1 mEq. The serum sodium was 136 mEq initially and rose to 143 mEq; the potassium rose from an initial level of 4.6 mEq to 5 mEq on February 3; 4 to 5.6 mEq, February 4; 6.1 mEq, February 5; 6.4 mEq, February 6; and 6.7 mEq on February 7. The serum chloride level was 101 mEq on February 4 and 95 mEq on February 8. On February 1 the serum calcium was 3.9 mEq, and on February 8 was 3.2 mEq. The inorganic

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of students.



phosphorus was 6.9 mEq on February 6. Electrocardiograms were taken daily.

Her urinary output on February 2 was 135 ml. and slowly increased with daily volumes of 140, 195, 170, 175, 160, 235, 325, 460, and 350 ml. Vividialysis with an artificial kidney was performed on February 7. The blood urea nitrogen was reduced from 225 mg. per cent to 161 mg. per cent, and the creatinine from 14.5 mg. per cent to 12.0 mg. per cent. During the vividialysis the blood pressure rose, and the blood flow through the artificial kidney was not satisfactory. Following the vividialysis the blood urea nitrogen rose steadily and the carbon dioxide combining power decreased. She became nauseated and vomited on February 6; this ceased following the first vividialysis, but recurred two days later. Her fluid intake ranged from 400 ml. to 1000 ml. in 24 hours. Her blood pressure was 170/70 on February 10 and 180/70 on February 11.

At 2:00 p.m. on February 12 she complained for the first time that she was unable to focus her eyes. At 4:00 p.m. she had slight twitching of the face and extremities, and she was given intravenous amobarbital sodium. Her convulsive movements continued, and at 7:00 p.m. she again received 200 mg. of amobarbital sodium intravenously. At that time she appeared to be slightly confused, and her convulsive movements continued despite medication.

She was placed on the artificial kidney for the second time at 11:00 p.m., and at 1:00 a.m., February 13, she vomited 50 ml. of bright red fluid. During the second vividialysis her hypertension increased. Small amounts of blood were withdrawn from time to time and antihypertensive medications were given. Her diastolic blood pressure rose from 75 to 90 mm. Hg. During the fifth hour of vividialysis the systolic pressure was 225 and the diastolic pressure was 90, dropping precipitously following the intravenous administration of 0.5 mg. of pentolinium. At that time her respiration was irregular and slow; her pupils were dilated and fixed; and she was unresponsive. In the sixth hour of dialysis her blood pressure remained 150/80 for 30 minutes and then began to drop. Artificial respiration with the positive pressure respirator was begun, and she was given levarterenol in saline. At 6:50 a.m. on February 13 her heart ceased to beat, and she was pronounced dead. Her temperature had remained normal until the final day when it rose to 104.8 degrees, rectally, and gradually fell to 101 degrees just before death.

Dr. Mahlon Delp (moderator): Are there any questions?

John Chapman (fourth year medical student)\*:

\*Though a medical student at the time of this conference in January, 1958, he, like the others referred to as students, received the M.D. degree in June, 1958.

What were the chest findings on her last hospital day?

Dr. Wu-Hao Tu (resident in medicine): A few rales were heard.

Gordon Cowles (student): Did she have a previous history of kidney disease?

Dr. Tu: No, but she had a history of hypertension.

Alfred Cheng (student): What was the serum potassium level during her hospitalization?

Dr. Tu: On February 2 the potassium was 4.7 mEq; February 3, 5 mEq; February 4, 5.6 mEq; February 5, 6.1 mEq; February 6, 6.4 mEq; February 7, 6.7 mEq; February 8, 6.2 mEq; February 9, 6.1 mEq; February 10, 6.0 mEq; February 11, 6.1 mEq; and on February 12 it was 4.4 mEq.

Milton Claassen (student): Did she ever receive digitalis?

Dr. Delp: On her last day 0.6 mg. of digitoxin was ordered, but I am not sure that it was given at that time. Dr. Allen, do you know anything about this?

Dr. Max Allen (internist): I believe it was given.

Craig Clark (student): Did she have a stiff neck on her last hospital day?

Dr. Tu: No, she did not.

Billy Cooney (student): Did she ever have dark urine?

Dr. Tu: It was not grossly dark.

Mr. Cheng: Did she vomit anything other than the 50 ml. of bright red fluid?

Dr. Tu: No, she did not.

Donald Coldsmith (student): Did she ever have melena?

Dr. Delp: It was never reported.

Dr. Thomas J. Rankin (internist): Did she have severe pain in the neck and back on the postoperative day?

Dr. John F. Christianson (internist): She had some mild back pain, but I do not believe it was terribly severe.

Mr. Cowles: Was the first unit of blood given before or after the operation?

Dr. Tu: It was given in the morning before the operation.

Mr. Clark: What was the platelet count during the second dialysis?

Dr. Tu: It was 174,000.

Mr. Coldsmith: What was the total amount of heparin given, and what was the nature of the electrolytes in the artificial kidney?

Dr. Tu: Initially she received 145 mg. of heparin; the second time she received 148 mg. Before that the serum sodium was 123 mEq, and the chloride was 110 mEq.

Dr. Charles Poser (neurologist): Was she fully alert when she was admitted?

Dr. Tu: She was fully alert on admission, but shortly afterward she had grand mal convulsions.

Dr. Delp: Now, if there are no further questions, we shall see the electrocardiograms.

Mr. Coldsmith: The electrocardiogram taken on the day of admission shows a regular sinus rhythm with a rate of approximately 80 per minute. I see no abnormalities, and I interpret this as a normal tracing.

The next electrocardiogram, taken on February 7, approximately one week after admission, shows peaking of the T wave but no other abnormalities. I interpret this as a normal tracing with the exception of the peaked T waves.

A tracing taken on February 11 again shows a regular sinus rhythm with a rate of approximately 80 per minute. There is some indication of peaking of the T waves, but this is not so marked as in the previous tracing, and I interpret this as an essentially normal electrocardiogram with the exception of the peaking of the T waves.

A tracing taken on the day of death (Figure 1) shows evidence of sinus rhythm with ectopic beats, the rate varying from 100 to 120 per minute. There are biphasic waves and some indication of flattening of the P waves and depression of S-T segments which I believe may be attributed to digitalis intoxication or hyperkalemia.

Dr. Delp: Dr. Crockett, do you have any comment?

Dr. James E. Crockett (cardiologist): I cannot be sure from the last tracing whether P waves are present. Potassium intoxication may produce auricular standstill as well as the other changes which are apparent here.

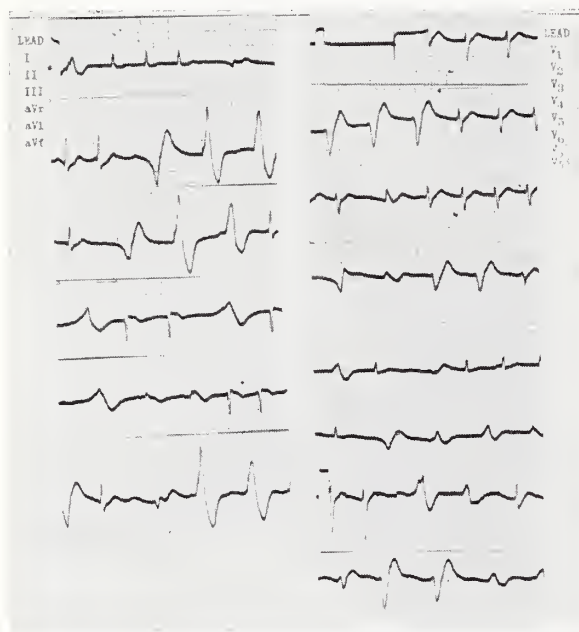


Figure 1. Electrocardiogram taken on the day of death.

Dr. Delp: May we have the x-rays, please?

Mr. Clark: Two x-rays were taken on the day of admission. No bony abnormalities are seen in the chest film, the trachea is in the midline, and the costophrenic angles are clear. There is a slight increase in the mediastinum and in the bronchovascular markings. The heart is at the upper limits of normal. The film of the pelvis and the proximal part of the femur shows a bony abnormality with the fracture line and the Smith-Petersen nail in place. A bony fragment is also seen which is probably the lesser trochanter. There is gas in the bowel.

Dr. Delp: May we have your discussion now, Mr. Cooney?

### Differential Diagnosis

Mr. Cooney: I shall base my differential diagnosis on the causes of oliguria and acute renal failure. First, I shall rule out obstructive uropathy as a possibility because there were no historical or clinical findings to support this diagnosis. Acute nephritis can be ruled out because of the clinical course and the absence of the typical laboratory findings. Nephrotoxins can also be dismissed because there was no history of exposure to them.

It is difficult to rule out bilateral renal artery thrombosis, but I believe our patient had acute tubular necrosis, secondary to postoperative shock and prolonged renal ischemia. It becomes difficult to determine whether she had a transfusion reaction from the blood that she received before surgery or whether she had a vascular collapse secondary to a surgical trauma. There is said to be no definite etiology in 45 per cent of patients with acute tubular necrosis. Two days before her admission to this hospital she underwent surgical repair of her intertrochanteric fracture on the left hip, and four hours later she went into shock. Routine treatment for shock was given, and she was given a total of 3700 ml. of fluid containing at least 1000 ml. of blood. During the next 48 hours she was oliguric with an output of only 163 ml., and she was transferred to this hospital for further evaluation.

On admission she had a urinous odor to her breath which, with the elevated blood urea nitrogen and creatinine, indicated advancing azotemia. The urinalysis showed a specific gravity of only 1.010 which, when associated with oliguria, is highly suggestive of renal failure, and I believe this can be attributed to her hypervolemic state. Shortly after admission she suffered a grand mal seizure, probably attributable to cerebral edema. She was started on a protein-free, high caloric diet consisting of carbohydrates and fat, but despite all measures the blood urea nitrogen, creatinine and metabolic acidosis increased. During that time there was a gradual increase in urine volume which might have been indicative of regener-

ation of some renal tubules. On the seventh hospital day she was dialyzed, and this resulted in a sudden rise of blood pressure and a reduction of the blood urea nitrogen. After dialysis, however, there was a progression of her azotemia and acidosis. On the eighth day she developed vomiting, probably from uremic gastritis. On the 12th day neurologic findings appeared which I believe were again due to cerebral edema. Marked twitchings developed, but these were fully controlled with amobarbital sodium.

She was again dialyzed, and her blood pressure rose much higher than before, being controlled with difficulty. She began to vomit bright red fluid. Her breathing became irregular, and artificial respiration was started. She became comatose, and soon afterward her heart stopped beating.

In summary, several things must be considered as the cause of our patient's death. First, there was the bleeding tendency secondary to her dialysis. Patients who are dialyzed often develop a bleeding tendency, and our patient was known to have vomited 1500 ml. of bright red blood. We do not know how much more was left in the gastrointestinal tract. Secondly, pulmonary edema is a common cause of death in patients who have hypervolemia and oliguria.

The electrocardiogram showed evidence of potassium intoxication. As the potassium increases the heart tends to contract irregularly often resulting in ventricular fibrillation.

It is difficult to say whether she died of a cerebral vascular accident due to a bleeding tendency or whether she died of potassium intoxication.

### Clinical Discussion

Dr. Delp: Thank you, Mr. Cooney. This case was selected because I wanted some comments and discussion on the etiology of acute renal failure and what I choose to call a conservative versus a more vigorous form of treatment in patients with at least a clinical picture similar to this. Also, because the artificial kidney was used, I wanted comments in regard to the uses of this instrument and other pertinent items having to do with the use of any gadget in the treatment of patients. Mr. Chapman, can you give me one reason for our patient's renal failure?

Mr. Chapman: I believe it was renal ischemia secondary to shock.

Dr. Delp: Mr. Claassen?

Mr. Claassen: I agree with that.

Dr. Delp: Mr. Cheng?

Mr. Cheng: It could have been a transfusion reaction.

Dr. Delp: Mr. Cowles?

Mr. Cowles: I believe it was most likely secondary to the surgical trauma.

Dr. Delp: Then you believe this was a delayed phenomenon occurring four or five hours after the patient left the operating room?

Mr. Cowles: I do not know exactly when she left the operating room, but it occurred afterward.

Dr. Delp: Mr. Clark?

Mr. Clark: I agree that it was due to the surgical procedure.

Dr. Delp: Then you believe it was a delayed shock occurring four hours after surgery?

Mr. Clark: Usually the shock occurs in 20 minutes after a spinal anesthesia such as our patient had.

Dr. Delp: Mr. Coldsmith?

Mr. Coldsmith: I believe it was transfusion reaction and surgical shock.

Dr. Delp: Mr. Chapman, what do you believe was the cause of death?

Mr. Chapman: Potassium intoxication.

Dr. Delp: Mr. Cowles?

Mr. Cowles: I believe it was a low serum potassium, and I believe that digitalis intoxication should be ruled out.

Dr. Delp: Do you believe that digitalis intoxication caused our patient's death, Mr. Cheng?

Mr. Cheng: A high magnesium level may cause a patient to become comatose.

Dr. Delp: Will you tell us about magnesium intoxication and the part it might have played in this case?

Mr. Cheng: At times, in a patient with oliguria, there is retention of magnesium, but because there is no laboratory evidence to support this, I am merely offering it as another possibility.

Dr. Delp: Do you believe it might have been just as valuable as a determination of the potassium levels?

Mr. Cheng: The magnesium level rises out of proportion in some patients with oliguria.

Dr. Delp: Are you familiar with the electrocardiographic picture in this situation?

Mr. Cheng: I believe there is left bundle branch block.

Dr. Delp: Mr. Cowles, what do you believe was the cause of our patient's death?

Mr. Cowles: Digitalis intoxication.

Dr. Delp: Mr. Clark?

Mr. Clark: An intracerebral vascular phenomenon and hemorrhage which could have been precipitated by dialysis.

Dr. Delp: Mr. Coldsmith?

Mr. Coldsmith: I believe it was caused by digitalis intoxication and cardiac arrest.

Dr. Delp: Mr. Cooney, what is your opinion?

Mr. Cooney: I believe the cause was digitalis intoxication with a lowered potassium level due to dialysis.

Dr. Delp: There are four of you who believe she



died of digitalis intoxication. Mr. Chapman, how do you believe the pathologist will describe the kidneys?

Mr. Chapman: The kidneys should appear large and edematous, and there should be evidence of regeneration in the tubules, and there should be spotty necrosis throughout all of the tissue. There may be hyaline, protein, and hemoglobin casts.

Dr. Delp: Do you believe the tubules will be obstructed?

Mr. Chapman: I do not say that this is an etiology of acute tubular necrosis, but I believe the tubules will contain casts.

Dr. Delp: What is your opinion about conservative versus vigorous treatment of renal failure, Mr. Cooney?

Mr. Cooney: It has been stated that about 80 per cent of patients with this syndrome will recover with conservative treatment.

Dr. Delp: Mr. Coldsmith?

Mr. Coldsmith: I believe that conservative treatment may improve the patient's condition in 80 per cent of the cases. On the other hand, some people see three indications for the use of the artificial kidney: elevated potassium, progressive azotemia, and convulsions. Our patient had all three of these. I believe that on the first occasion she received some benefit from the use of the kidney as evidenced by the lowering of the blood urea nitrogen. She did have complications when it was used the second time, and I do not believe that she benefited from it.

Dr. Delp: Mr. Clark?

Mr. Clark: I believe that conservative treatment should have been tried.

Dr. Delp: Mr. Cowles?

Mr. Cowles: I agree that conservative treatment would probably be better, but in our particular case it is impossible to say whether or not she benefited or was harmed by the artificial kidney.

Dr. Delp: Mr. Cheng?

Mr. Cheng: I would have treated this patient conservatively.

Dr. Delp: Mr. Claassen?

Mr. Claassen: I believe conservative treatment would have been better.

Dr. Delp: Mr. Chapman?

Mr. Chapman: Conservative treatment should be followed until the three indications mentioned earlier are found.

Dr. Delp: Dr. Bolinger, may we have your comments, please?

Dr. Robert Bolinger (internist): As far as the original etiology is concerned I have nothing to add, but I am particularly interested in our patient's response to the dialysis. The possibility has been mentioned of potassium deficiency and the effect of the

digitalis together producing a cardiac complication. Several factors are against this. In the first place, during the terminal event she first showed changes in consciousness, and then for some time her blood pressure was not unobtainable, but was 150/80. I believe that this is a factor against a primary cardiac dysrhythmia. Secondly, I am not impressed with the efficiency of the artificial kidney in removing potassium from the body so rapidly. I doubt that the hypermagnesium was contributory since the dialysis fluid contains magnesium in physiological amounts, and there should be a gradient, if there were a hypermagnesium in the first place, which would eliminate magnesium from the body.

Other things that must be considered when the patient's condition becomes worse during dialysis include dynamic changes which may occur because of too much fluid going into or out of the patient's blood. I doubt that that was a factor in our case. Transfusion reactions must be considered and inaccuracies in the osmolarity of the bath fluid producing either hypo-osmolarity or hyperosmolarity. In our patient's case I believe that this should be considered because of her mounting blood pressure and the change in consciousness, all consistent with cerebral edema characteristic in such conditions. Finally, we must consider the hypertensive reaction which goes along with this. I believe, in the final analysis, that our patient's death was due to intracranial complications, probably an intracranial hemorrhage from the rise of blood pressure and remembering the heparin which had to be given.

Dr. Delp: Thank you, Dr. Bolinger. May we have your opinion, Dr. Poser?

Dr. Charles Poser (neurologist): I saw this patient a few hours before her death, and at that time she was deeply comatose. Her pupils were dilated and fixed. I was impressed with the fact that before she became comatose she had complained of some difficulty with her vision, and perhaps I erroneously interpreted this as diplopia. There is little doubt that severe metabolic disturbances such as she had accounted for much of her difficulty. She probably had a great deal of cerebral edema, and I assume that she was atherosclerotic. With the artificial kidney her brain was subjected to sudden and wide changes in hemodynamics, her blood pressure rising and falling rather rapidly. In addition to this, there were changes in the potassium level and in her calcium and phosphorus relationship.

In regard to the terminal event I am not sure whether she died of hemorrhage or thrombosis. My belief is that, rather than massive hemorrhage, she had multiple petechiae especially in the brain stem. She may have herniated, and, as a result of these

hemorrhages and softening of the brain stem, died. All of this was the result of the wide range of blood flow through her vascular system. I have nothing to add about the primary etiology, but there might have been the possibility of a fat embolism. However, it is most unusual in hip fractures, and the course is certainly not that which is found in this disease.

Dr. Delp: Thank you. Dr. Allen, will you give us your opinion, please?

Dr. Allen: Dr. Poser's mention of fat embolism deserves some consideration. Classically, of course, it does occur after the fracture of long bones and, after an interval free of symptoms, the patient first develops respiratory deficiencies, cyanosis, and periods of shock. I believe this factor had to be considered on the operative day as a cause of her cyanosis and shock. Following this, one sees the classic cerebral symptoms of fatty embolism of the brain. So the time relationships appear good for fat embolism, but the fact that the fracture was in the neck and not down in the shaft of the femur is against this. There were no petechiae of the skin, classically seen in the lateral axilla, and which one might expect to see in fat embolism. It is my belief that the initial shock was associated with the surgery.

The final episode occurred in a dramatic fashion. Her blood pressure rose gradually for a while, then rather precipitously, and it was at that time that she vomited the bloody fluid. Shortly afterward she became comatose. Her pupils rapidly became dilated and fixed. This appeared to me to be an apoplexy, and my opinion at that time was that she had an intracerebral hemorrhage. I am uncertain whether this occurred in an area of a previous lesion of fatty embolization with brain softening around it, as a result of some other lesion there, or simply as a result of anticoagulation and a sudden rise in blood pressure. Her condition deteriorated rapidly, and in spite of the artificial respiration she was poorly oxygenated. The last electrocardiogram, taken only a few minutes before death, seemed to agree with a terminal myocardial hypoxia.

In general, I am conservative about using gadgets or machines in the treatment of patients. As has been pointed out, two or three things were occurring here that disturbed us. Perhaps there was some other cerebral reason for the diplopia and the convulsions. Perhaps simple cerebral edema was the only cause. But these things were getting worse, and it became evident that the patient was going to be in real trouble and in a convulsive state if we could not correct it. I do not believe that she was ever in any real danger from her hyperpotassemia, and I do not consider hyperpotassemia to be the chief indication for dialysis. The high blood urea nitrogen and the convulsive state were the main reasons for trying another procedure.

Dr. Delp: Dr. Allen, had the patient stopped breathing before artificial respiration was begun?

Dr. Allen:

Dr. Delp: Do you believe that she could have been breathing on her own for that 16-hour period?

Dr. Allen: I am certain that she could not.

Dr. Delp: Dr. Rasmussen will now give the pathologist's report.

### Pathological Report

Dr. Peter Rasmussen (pathologist): The changes found at gross autopsy could be arranged into four groups. First were those due to old age, including atrophy of the ovaries, a moderate degree of osteoporosis, and the internally fixed fracture through the trochanter of the left femur.

The second major category were changes in the kidneys. They were not enlarged, but there was a distinct cortico-medullary junction which made the gross diagnosis of lower nephron nephrosis tenable.

The third category was the evidence of heart failure. This apparently had been progressing for some time, as there was a distinct "nutmeg" character of the liver, bilateral pleural effusion, and minimal edema of the legs.

In the fourth category were manifestations of hemorrhage in the brain and heart. The brain weighed

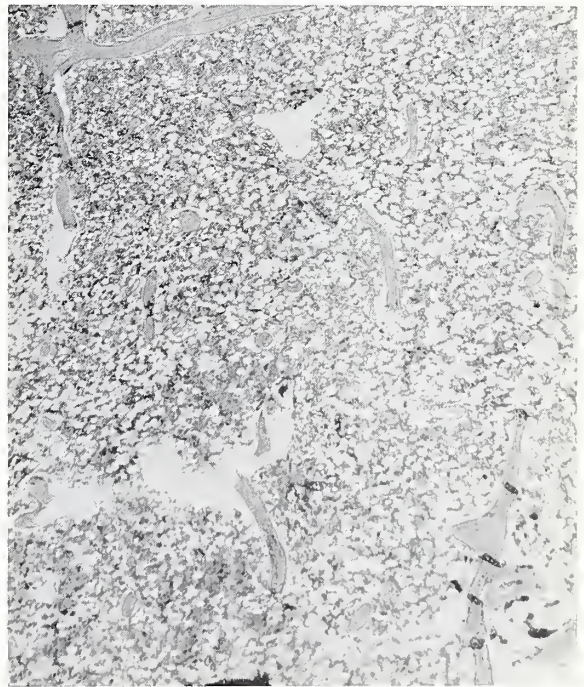


Figure 2. Photomicrograph of a lumbar vertebra illustrating osteoporosis. Note the thin bony trabeculae. Hematoxylin and eosin stain. 96X.



1,480 grams and contained three large areas of recent hemorrhage. One, in the white matter of the left hemisphere extending into the occipital lobe, measured 6 x 5 x 4 cm. The second, measuring approximately 2 cm. in diameter, was on the opposite side at the same level as the first. The third, measuring approximately 3 x 2 x 2 cm., was at the level of the mamillary bodies in the white matter of the right hemisphere. Finally, there was a large area of subendocardial hemorrhage along the bundle of His in the left ventricle.

Microscopically, the ovaries were largely replaced by dense pink collagen except for a small rim of cortical tissue. Consequent to this was moderate generalized osteoporosis as seen in the lumbar vertebra, and documented by thin bony compacta and the paucity of bony trabeculae in the vertebral body (Figure 2).

While there was no gross callus formation in the area of fracture, there was beginning callus and organization of the hematoma and the laying down of osteoid along small osteoporotic bony trabeculae. Osteoblasts were arrayed in "soldier fashion" along the newly formed osteoid (Figure 3). In addition, there were necrotic bone fragments being removed by osteoclasts.



Figure 3. Early callus formation is evident in the hip fracture. An organizing hematoma is seen in the top one-half of the field. A bony trabecula has osteoid being laid down upon it. The arrow indicates a row of osteoblasts. Hematoxylin and eosin stain. 157X.

The kidney demonstrated lower nephron nephrosis. Chronic phlebitis could be seen around thin-walled arcuate veins, and this change was mainly present at the cortico-medullary junction. In addition to numerous hemoglobin casts, homogenous protein casts were evident mainly in the distal convoluted tubules. Some of these had ruptured into the interstitial tissue with surrounding chronic inflammatory cells, the so-called cast granuloma (Figure 4). These may herniate into an adjacent vein resulting in what has been called a tubulo-venous fistula. Finally, at this stage of development of hemoglobinuric nephrosis there were mitoses in tubular cells indicating regeneration.

The parathyroid glands revealed a diminution of parenchymal fat, as well as a tendency toward acinar formation in glandular cells. In addition, numerous mitotic figures were evident. In my opinion, this picture represented a reaction to the uremia.

Throughout both right and left ventricles there were several areas of subendocardial micro-infarction. Hemosiderin-laden macrophages were scattered in the loose granulation-type tissue, and I believe that the presence of these macrophages indicated that the infarcts occurred at the time that the patient had her

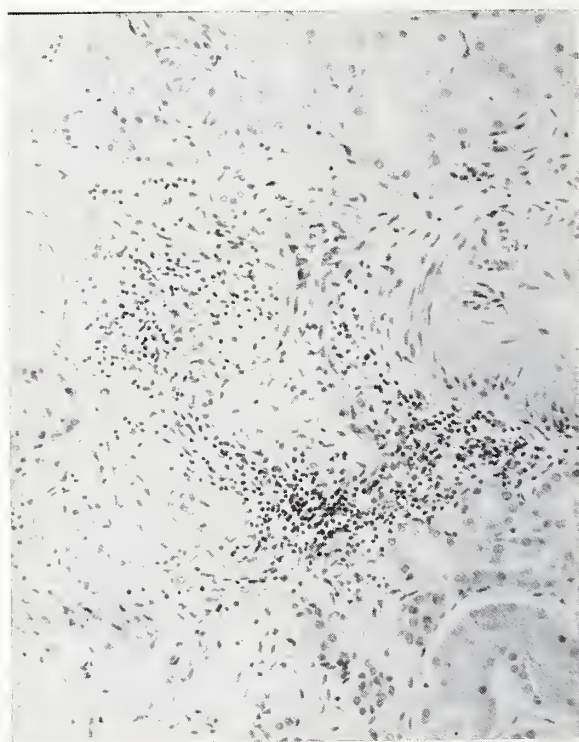


Figure 4. A cast granuloma of the kidney showing proteinaceous material rupturing through a distal convoluted tubule and exciting the chronic inflammatory response surrounding it. Hematoxylin and eosin stain. 175X.



episode of hypotension just after her original hip nailing, approximately three weeks before death.

Cerebral edema was present throughout the brain, substantiated by the increase in weight and seen microscopically as perineuronal vacuolization. Other areas of the brain adjacent to the regions of gross hemorrhage showed only recent extravasations of blood in the form of perivascular, satellite hemorrhages. Small petechial hemorrhages could also be found in the brain stem, mainly in the sections of the pons. Multiple sections through the brain failed to reveal any micro-infarcts which one might expect subsequent to fat embolization after a fracture of this duration; indeed, fractures through the femoral neck area are not prone to cause fatty emboli.

Finally, in the liver there was chronic passive congestion with hemosiderin in Kupfer cells in the central areas as well as necrosis of hepatic cells. A slight increase of central fibrous connective tissue accompanied this.

Pathogenetically the problem arises as to the cause of the grand mal seizure which occurred approximately 11 days before death. We are left with the speculation that overhydration immediately following her hypotensive state may have contributed to cerebral edema, which, in turn, may have been the precipitating factor for the seizure. Finally, it seems that there is difficulty in establishing the precipitating factor of the cerebral hemorrhages which caused her final episode. My first thought was that dialysis by the artificial kidney might have been involved, since an anticoagulant is used in the procedure. That vividialysis was probably not of prime importance is revealed in the history because visual difficulty as well as the final episodes of convulsions occurred before the second dialysis. Also, the neurologic manifestations occurred three days after the first vividialysis, thus making this event seem unlikely as a precipitating cause. It seems that some bleeding took place before her second dialysis, but perhaps the second dialysis, because of the use of heparin, may have enhanced the cerebral hemorrhage. In searching for a primary cause of the hemorrhage we are left with uremia or cerebral edema as predisposing factors.

Dr. Delp: Dr. Bolinger, are you willing to accept the final episode as being a complication of dialysis?

Dr. Bolinger: It is a good possibility, but the patient's course was directed that way, and it just seemed to hasten it.

Dr. Delp: Are such situations a complication of dialysis, or are there other complications we should keep in mind when using this procedure?

Dr. Bolinger: I do not believe there are any complications particularly applicable to our patient. There is the possibility of over-hydration, as Dr. Rasmussen

mentioned. This could be accounted for if the bath were hypotonic.

Dr. Delp: Thank you. I believe the principal features of this problem have been well illustrated.

### Summary

Dr. Delp: Acute tubular necrosis so prominently cited in the descriptions of complications occurring in wartime casualties can and does feature events of almost routine care of an illness which in itself seems minor. The prompt recognition and treatment of shock is an important factor in prevention.

Once the state is recognized the desire to force diuresis by excessive fluid input must be controlled. A decision to use vividialysis should then be made only after a careful consideration of all of the factors operating in the patient. Here previously existing hypertension, the age of the patient, pre-existing vascular disease, and cerebrovascular insufficiency suggested that vividialysis might subject the patient to greater danger than more conservative measures.

### Pathological Anatomical Diagnosis

Recent massive hemorrhages into the cerebrum, brain stem, subarachnoid space, and ventricles.

Edema of the brain, weight 1480 gm.

Small infarcts of the myocardium consistent with two to three weeks duration.

Recent hemorrhage in the endocardium.

Bilateral pleural effusion, acute passive congestion of the liver with slight chronic passive congestion, and edema of the lower extremities.

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### Harold G. Ingham Dies

Mr. Harold G. Ingham, former executive director of the extension program in medicine at the University of Kansas Medical Center, died there on August 21 after suffering a heart attack. He had been employed by the university since 1915, serving first as director of the correspondence study bureau in Lawrence and moving to the Kansas City position in 1945. Since retiring from the university position, he had been executive secretary of the Kansas Adult Education Association.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

When the Congress that is elected in November goes to work next January 7, it will have before it a half dozen important health-medical issues that the last Congress took some interest in but didn't resolve. They include hospitalization under social security, tax-deferment on annuities, loans and mortgage guarantees for hospitals and nursing homes, aid to medical schools, and amendment of Veterans Administration hospitalization procedures.

The issue of hospitalization under social security—the Forand bill principle—will come into the spotlight shortly after the new session starts. Under instructions from the House Ways and Means Committee, the Department of Health, Education, and Welfare will complete a study on the problems of financing hospital care for the aged before next February 1. Some study of medical costs may also be included.

Decision to move ahead with a study of medical care costs for the aged was reached by the committee at the same time it excluded the Forand idea from the social security bill enacted during the summer. HEW was told to pay particular attention to the possibility of increasing OASI taxes, and with the money purchasing health insurance (nonprofit or commercial) to take effect upon retirement or disability. This would differ from the Forand plan in that health care would be financed through insurance, and not paid for directly by the federal government.

The Keogh bill to allow doctors and other self-employed to defer income taxes on money put into retirement funds passed the House with little opposition but encountered difficulty in the Senate. It was defeated there in the closing days, and under unusual circumstances. Policy committees of both parties decided to oppose the bill as too costly, and the vote came in the course of a complicated legislative maneuver that could not be used as a test of whether individual senators favored or opposed the bill itself.

Keogh bill sponsors, however, are encouraged that 32 senators resisted official party instructions and stayed with the pension plan. They are confident that next year under more favorable legislative circumstances the measure will clear the Senate.

An effort was made late in the session to authorize grants to medical schools for building and equipping teaching as well as research facilities. The bill extend-

ing the research grants program also would have allowed use of the grants for "multi-purpose" structures (teaching and research) if emphasis were on research. However, for fear this change would hold up the simple extension bill, it was dropped off before the bill reached the House floor. Sponsors of aid to medical education will be back next year and campaign on this issue alone.

Legislation for U. S. guarantee of nursing home mortgages, strongly supported by the American Medical Association, fell by the wayside in the House during the closing hours of the session, after having cleared the Senate with no trouble whatever. This also will be pushed next year, and may have a better chance of passage because of the growing emphasis on need for solving the problems of the aged.

Far too late for passage, Chairman Olin Teague's House Veterans' Affairs Committee reported out a bill that would make a number of changes in VA hospitalization procedures, liberalizing some and tightening up on others. The bill also would require VA to open 5,000 beds over which Mr. Teague and VA Administrator Whittier have been squabbling for months, the latter maintaining that the beds aren't needed. That issue still is unresolved, inasmuch as the bill didn't pass.

Congress did roll out a sizable list of medical-health laws. It ordered the calling of a 1961 White House Conference on the Aging, gave Food and Drug Administration authority to enforce its pre-testing standards on foods to which chemicals and other substances have been added, authorized loans as well as grants under the Hill-Burton program, authorized grants for the country's schools of public health and for civil defense purposes, raised military and VA physicians' pay, and required labor and management health and welfare plans to make reports and open up their books for inspection by members.

American Medical Association was able to persuade the Department of Defense and the administration to retain the post of assistant secretary (health and medical) in the reorganization of the department. In legislation passed by Congress to bring about the reorganization, one of the assistant secretary posts would have been eliminated, and the medical assistant was marked for down-grading. However, Secretary McElroy eventually announced that the position would be continued.

Even before Congress adjourned, it was clear that trouble was in sight for Medicare because of inadequate appropriations and instructions from Congress not to exceed the appropriation. To keep within the limitation, if possible, Defense Department was channelling many thousands of service families to military facilities, and at the same time limiting the scope of care permitted in civilian facilities.

## PHYSICIANS' ACTIVITIES

**Dr. E. Grey Dimond**, director of the Cardiovascular Laboratory at the University of Kansas Medical Center, will be one of the speakers at the annual conference of the Oklahoma City Clinical Society, October 27-29.

A feature story in the *Eureka Herald* recently paid tribute to **Dr. Fred D. Lose**, Madison, who is now in his 53rd year of medical practice.

**Dr. E. Dale Peffley**, formerly of Chetopa, is now practicing in Hoisington in association with **Dr. Robert Moore** and **Dr. Charles Davenport**. Dr. Peffley is a graduate of Oklahoma University School of Medicine.

Two physicians from the University of Kansas School of Medicine, **Dr. Mahlon H. Delp** and **Dr. Robert T. Manning**, were speakers at a meeting of the Mississippi Valley Medical Society in Chicago, September 24-26.

**Dr. A. C. Armitage**, Hutchinson, has closed his office because of poor health.

A physician new in the state, **Dr. William C. Strutz**, is now serving two hospitals as radiologist, the Atchison Hospital at Atchison and the Cushing

Memorial Hospital in Leavenworth. Dr. Strutz is a graduate of Marquette University School of Medicine, and he has practiced in Milwaukee and Detroit, taking his radiological training in the latter city.

**Dr. Orville S. Walters**, formerly of McPherson, has been appointed director of health services, professor of hygiene, and lecturer in psychiatry at the University of Illinois. He is a graduate of the Menninger School of Psychiatry, Topeka.

The Sumner County Selective Service Board recently honored **Dr. Harry L. Cobean**, Wellington, for 15 years of gratuitous service as its medical advisor.

**Dr. Harold Lawless**, who has been in practice in Sacramento, California, since his graduation from the University of Colorado School of Medicine, has begun practice in Blue Rapids.

Two physicians who are graduates of the University of Kansas School of Medicine, **Dr. James L. Barber** and **Dr. Dale W. Anderson**, have begun practice in Augusta. Dr. Barber has just completed internship at Broadlawns Hospital, Des Moines, and Dr. Anderson had his internship at Good Samaritan Hospital, Phoenix.

**Dr. Bennett Wong**, fellow of the Menninger School of Psychiatry, Topeka, has been named acting clinical director of the Winfield State Hospital and Training School.

## DEATH NOTICES

HENRY OSMOND HARDESTY, M.D.

Dr. H. O. Hardesty, 88, an honorary member of the Northwest Kansas Medical Society since 1943, died at his home in Jennings on August 17. He had been in retirement because of poor health during the past five years, but had been in practice more than 50 years before he retired. He was graduated from Kansas Medical College in 1900 and spent his entire professional life in Jennings with the exception of a period during World War I when he served in Europe in the Army Medical Corps.

PAUL A. BINTER, M.D.

A Wichita physician, Dr. Paul A. Binter, 43, died at his home on August 26 after suffering a heart attack. He had practiced in Wichita since 1951. A graduate of the University of Kansas School of Medicine in 1942, Dr. Binter served in the Army Medical Corps for three years during World War II, principally in Europe. He later had residencies at the Veterans Administration hospitals in Wichita and Excelsior Springs and became a diplomate of the American Board of Internal Medicine. He was an active member of the Sedgwick County Medical Society.



The psychological effects of tuberculosis were discussed by **Dr. Roy A. Lawson, Jr.**, of the Tuberculosis Hospital at Chanute, at the September meeting of the Allen County Medical Assistants Society in Humboldt.

**Dr. Charles C. Gullett** has been appointed director of medical services for Trans World Airlines, Kansas City. He has been with T.W.A. since 1953.

"The Clinician as a Sabbatician" is the subject of a paper by **Dr. E. Grey Dimond**, of the University of Kansas Medical Center, published in the September issue of *Missouri Medicine*.

**Dr. Franklin D. Murphy**, chancellor of the University of Kansas, Lawrence, recently spent a month in Latin America inspecting institutions of higher education.

**Dr. Francis R. Applegate**, a 1955 graduate of the University of Kansas School of Medicine, is now practicing in St. Marys in association with **Dr. Fred E. Brown**.

The Nelson Clinic, Manhattan, announces that **Dr. Robert D. Olney** is now a member of its staff, specializing in surgery. A graduate of the University of Nebraska College of Medicine, he was a resident surgeon at the university's hospital in Omaha after he completed his internship there.

**Dr. Jay H. Armstrong**, Hutchinson, has resigned as county physician for Reno County to devote his time to private practice.

A newcomer in Great Bend who is practicing ophthalmology in association with **Dr. David T. Loy** and **Dr. Robert C. Polson** is **Dr. William F. Casteen**. He was graduated from the University of Kansas School of Medicine in 1955 and has since been doing postgraduate work at the Indiana University Medical Center, Indianapolis.

The United States Junior Chamber of Commerce (through Mr. Robert V. Cox, president, Tulsa, Oklahoma) is now accepting nominations for 1959 awards to the nation's "ten outstanding young men." Last year five of the ten named, all under 36 years of age, were physicians, recognized for "exceptional achievement in their chosen field."

## COUNTY SOCIETIES

The first fall meeting of the Shawnee County Medical Society was held at the organization's office building on September 2. An attorney, Mr. Charles Fisher, Topeka, discussed "Current Trends in Malpractice Cases."

Members of the Wyandotte County Society met at the Town House Hotel, Kansas City, on September 16. Dr. Harold Schnaper, of the Veterans Administration Hospital, Washington, D. C., spoke on "Hypertension."

A meeting of the Golden Belt Medical Society was held at Irwin U. S. Army Hospital, Fort Riley, on October 9 with Col. Milford T. Kubin, M.C., as host. A tour of the hospital started the day's program, after which the staff presented a discussion on gastric lesions. Dinner at the Rimrock Room concluded the event.

Dr. A. A. Fink, Topeka, was speaker at a meeting of the Marshall County Society held at Marysville recently. His subject was blood diseases.

### Research Grant to K.U.

Seven contracts totalling \$256,986 for research on improved methods of testing possible anticancer agents and for related work were announced in September by the Public Health Service. Included was a grant of \$18,128 to the University of Kansas, Lawrence, for maintaining a nucleus colony of inbred mice. This will be a reserve colony so that breeding and experimental mice will always be available.

The contracts will be administered by the Cancer Chemotherapy National Service Center at the National Cancer Institute, Bethesda, Maryland.

Cancer, the second leading cause of death in this country, will strike an estimated one out of every four Americans now alive unless new preventive measures are found, according to the publication *Patterns of Disease* prepared by Parke, Davis and Company for the medical profession.

For a man, chances of developing the disease are one in five, declining after the age 50; and of dying from it, one in eight, declining after the age of 55, says *Patterns*. For a woman, chances of being hit by cancer are one in four, declining after 30; and of dying from it, one in seven, declining after 35.

# Economics in Medicine

## *Effective Credit Policies*

**FLOYD F. WEHRENBURG, Kansas City**

After you have established a standard fee schedule and procedures for explaining those fees to your patients, your next thought will be of your credit policies. It is important that the patient be informed of your charges; it is equally important that you be informed of his paying ability and habits.

Setting up standard policies for the extension of credit will be of further convenience to you since you can then honestly say to your patients that "It is the policy of our office. . . ." This tells Mr. Jones that he is being treated on the same basis as other patients and those requests you make of him will not seem to be discriminatory.

### **Rating Patients**

Obviously, the best way to keep your collections high is to avoid letting any account become delinquent. It is well known that there are many patients who will always take care of their accounts promptly. However, there are those who need encouragement and others you know who will shirk their responsibility if you permit it.

To be certain that each patient is treated properly, it is imperative that you know *in advance* of extending credit what his paying habits are. For this reason we recommend obtaining credit reports on all patients as soon as it is established that they will be permanent patients or before any major service is rendered. From the information in the report you can classify the patient as having "A," "B," or "C" rating. Both his financial card and case history should be marked accordingly. The history is always pulled when the patient comes into the office so this will give your assistant the information in advance of his arriving or at least of his departure. And of course you want all financial information on his account card. Since a rating seldom changes, the cards will have to be marked only once in most cases.

An "A" rating would mean that the patient could be extended unlimited credit (within reason) without concern about his paying. A "B" informs your assistant that arrangements for paying should be worked out with the patient on any major item and that he should be encouraged to pay all charges as he goes along. A "C" would warn you that the patient must be kept on a current basis.

Assume that the "A" patient has just received serv-

ice and presents the charge slip to your assistant. She thanks him politely and, if he asks about paying, she of course replies that she will be glad to accept payment at that time. (She never indicates she doesn't care or suggests he wait.) However, if he says nothing about paying, neither need she because she is confident he will take care of it at the end of the month.

When the "B" patient presents his charge slip, your secretary says, "Thank you, Mr. Jones. The charge is \$10. Would you like to take care of it today?" If he says no, then her reply is, "If you prefer to wait until the end of the month, that will be perfectly all right, Mr. Jones." In this way she imputes to him a promise to pay at the end of the month.

To the "C" patient your secretary will say, "Thank you, Mr. Jones." Then reaching for her receipt book she will add, "The charge is \$10 for today." This is a polite way of saying that she is expecting payment at that time. If he does not intend to pay, he will have to explain. She should then reply, "When do you want to take care of it, Mr. Jones?" If he says he'll pay next time or at the end of the month, your secretary has his promise. She will answer, "All right, Mr. Jones. I'll note that on your card." If she can do so in his presence, so much the better. He is thereby bound by his own words and he knows they have been written down.

Your assistant should never miss the opportunity to say, "It is our policy. . . ." New patients should be informed that "It is our policy to send statements at the end of each month." In making financial arrangements, it is well to say "It is our policy to make advance arrangements for the convenience of our patients." This lessens the likelihood of offending.

If you deviate from standard procedure, let the patient know he is an exception. For instance, if he is given a longer time to pay than you ordinarily would give him, say "Under the circumstances, we will do so this time." If he knows you are being lenient because you believe the reason is justified, he will be less likely to ignore his obligation or to tell others that you don't have any policy for enforcing payment.

Your credit policies should be aimed at educating patients to prompt paying habits. If your patients develop such habits, they will stand you and him in good stead even when economic conditions are unfavorable. Therefore, be certain that you set up effective credit procedures in your office and follow them faithfully.

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Mr. Wehrenberg is Missouri-Kansas Manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

# Social Security

## *The Physician's Role in the Disability Program*

Doctors, hospitals, institutions, and agencies having contact with disabled people are frequently asked to fill out medical reports in connection with claims under the disability provisions of the social security law. Under these provisions, disabled workers 50 to 65 years of age, and the disabled dependent sons and daughters of retired or deceased workers, may receive monthly disability payments. Disabled workers under age 50 may have their social security records "frozen." This protects the future benefit rights of the disabled worker and his family.

To qualify under these disability provisions, a person must be unable to engage in any substantial gainful activity by reason of a medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration. A disabled worker must, in addition, have social security credits for work in at least five out of the ten years before he becomes disabled, including a year and a half out of the three years before his disability began. A disabled child must be both unmarried and dependent, and must have become disabled before his or her 18th birthday.

Applications under the social security disability provisions are taken by the more than 570 social security district offices, located in communities all over the nation. The social security district office gives the disabled applicant information about his rights, helps him to fill out his application, and to get the proofs and documents he may need to support that application. Under the law, the disabled person is responsible for furnishing, at his own expense, the evidence to show that he is "disabled" within the meaning of the social security law.

His social security district office gives him one or more copies of a medical report form on which this evidence can be supplied. He is asked to take or mail this form to his attending physician or to a hospital, institution, public or private agency where he has been treated for his disabling condition. This report form, designed as a guide for the reporting physician, lists the kind of medical facts essential for the determination of "disability." However, the reporting doctor is not required to use it; if he prefers, he may make his report in the form of a narrative summary or he may submit photocopies of the pertinent medical records. The completed reports are to be returned by mail to the social security district office (or to a state agency, if indicated).

By providing a full and objective clinical picture of his patient, the reporting doctor fulfills his responsibility to his patient and, incidentally, expe-

dates the decision. To be of maximum use for the evaluation of a patient's capacity for work, the report should include a history of the impairment, the symptomatology, clinical findings and diagnosis. Obviously, the reporting physician has an important role in the operation of the social security disability provisions. He is not, however, asked to decide the issue of "disability." The determination as to whether a patient is "disabled" must be made within the scope of the social security law; often it is based on evidence from more than one medical source. Also the determination must take into account factors which are not purely medical—factors such as education, training, and work experience.

After the applicant has filed his claim under the disability provisions, and furnished the supporting evidence, his case report is forwarded by his social security district office to an agency of his state—usually the state vocational rehabilitation agency. Under agreements between the individual states and the federal government, these state agencies make the disability determinations for their own residents.

In the state of Kansas, the agreement with the federal government provides for the Kansas State Board of Vocational Rehabilitation to make these disability determinations.

The evaluation of disability is made by a "review team" in the state agency. There are at least two professional people on each team. One of the two is a doctor of medicine (often a practicing physician who serves with the state agency on a part-time basis); the other is trained in evaluating the personal and vocational aspects of disability. The team must decide whether the applicant is sufficiently disabled to prevent him from engaging in any substantial gainful activity within the foreseeable future.

In many cases it is necessary to write back to the reporting physician because the medical report does not contain enough clinical facts. As a rule, the kinds of medical facts that the attending physician needs in making his diagnosis and in treating his patient are the same as those required to evaluate the severity of impairments in disability programs. However, certain medical facts are more highly significant in disability evaluation than in medical management of the case. To evaluate the effect of the impairment on the individual's ability to work requires the kind of medical evidence that confirms the diagnosis and measures remaining functional capacities of mind and body. By furnishing complete and objective evidence, the reporting physician makes it unnecessary for the



reviewing physician to "write back" for additional clinical or laboratory data.

If the medical evidence initially submitted indicates a reasonable likelihood that the applicant is disabled, but more precise clinical or laboratory findings are needed to arrive at a sound decision, or to resolve conflicts in the evidence, a consultative examination (usually at the specialist level) may be ordered to obtain additional information. Selection of consulting physicians and payment of fees are governed by state practices.

Some doctors feel that they should be reimbursed by the government for the cost of preparing the medical reports on their patients, and it is, of course, quite within their prerogative to charge the patient a fee for that service. However, under the law, the Social Security Administration cannot pay that fee; that is the individual's responsibility.

### Evaluation of Disability

The central purpose of disability evaluation is to determine remaining mental and physical capacities: (1) what the claimant has left, and (2) what he can do with what he has left.

A realistic evaluation of disability must be based on clinical and laboratory tests of the individual's ability to meet the metabolic demands of activity, to reason, to perceive, and to perform certain basic activities such as sitting, standing, bending and walking. When incapacity results from severe impairment of one or more such functions, it is essential to establish not only the fact that functional impairment exists, but also its extent.

A brief discussion of disability from heart disease may serve to illustrate the kind of evidence needed to measure the patient's remaining functional capacity, after appropriate therapy. Most frequently, impairments of the circulatory system produce loss of bodily function by reduction of cardiac reserve, or interference with peripheral vascular circulation. As a result the circulatory apparatus cannot meet effectively the metabolic demands placed upon it. The diagnosis of the condition usually reflects whether the impairment is caused by valvular disease, myocardial damage or vascular pathology.

Cardiac size by x-ray or physical and electrocardiographic findings furnish objective proof of cardiac pathology. The amount of dyspnea or angina described in terms of the number of steps that can be mounted or distance in feet or blocks that the patient can walk is highly significant to evaluation of the degree of loss of function. The presence or absence of cardiac edema and response to therapy are also indicative of severity of cardiovascular impairments. The status of the pulse in the peripheral vessels may provide gross clinical evidence of impaired circulation of the extremities.

Impairments of the cardiovascular system may manifest themselves with dramatic suddenness, e.g., myocardial infarction, obstruction of vessels in peripheral or central nervous system circulation, lungs, and other visceral organs. The initial clinical manifestations are severe and the prognosis dubious. With survival from the acute stage, and appropriate therapy, substantial improvement can be expected over a period of time. A realistic evaluation of remaining function should be made after the convalescent period. Hence, the clinical and laboratory findings after maximum improvement from treatment are particularly valuable in making a determination of remaining cardiac, brain or other function. (Note that a "waiting period," is prescribed by law, i.e., the first monthly disability insurance benefit cannot be paid until the seventh month after the onset of the disability.) A description of the acute attack helps confirm the diagnosis and should therefore be included in the report.

Loss of function is evaluated on the basis of clinical and laboratory findings after maximum benefit from treatment. Clinical information concerning nature and response to treatment furnishes information on stability of functional capacity, i.e., a history of periodic decompensated heart disease, in spite of treatment, would indicate a comparatively severe condition.

More complicated tests of vascular function may be required in certain cases, e.g., arteriography. The reporting physician should not be concerned because he may not have equipment to perform these tests. A carefully performed exercise tolerance test (if not medically contraindicated) will almost always provide the clinical evidence needed to evaluate the degree of remaining function.

### Conclusion

In developing evaluation guides for the use of state agencies and its own technical and professional personnel, the Social Security Administration has had the continuing cooperation of a Medical Advisory Committee appointed by Commissioner Schottland, in February 1955. The committee is composed of recognized specialists associated with medical and allied professions in various fields outside government, such as general practice, research, medical education, industry, and labor.

The American Medical Association has cooperated with the Social Security Administration by informing its members about the medical aspects of the disability program, especially the preparation of medical reports. On June 1, 1957, the *Journal of the American Medical Association* carried a comprehensive report on the administration and organization of the disability provisions. Regulations on the meaning of disability appeared in the September 28, 1957, issue.

## *After 35 Years—A Disaster or a Triumph?*

FRANCIS M. IKEZAKI, M.D., *Honolulu*

### **Purpose**

Approximately 35 years have passed since the first BCG vaccine was administered. BCG has been administered to 145,000,000 people. Yet it remains a controversial topic in tuberculosis control.

BCG provides a close similarity with another controversial topic in disease control of today, the "Salk vaccine." Here again we are dealing with living, "attenuated" organisms for disease control. We review the history of BCG with the hope that it may help to avoid similar errors in our present practice of medicine.

### **History**

Tuberculosis was once unquestionably the greatest single cause of disease and death in the western world.<sup>17</sup> Five outstanding discoveries recorded in medical history have greatly increased our knowledge of tuberculosis.<sup>9</sup>

1. The demonstration by Auenbrugger in 1761 of a method of percussion by which the comparative densities of subadjacent parts could be determined.

2. The stethoscope described by Laennec in his book published in 1819.

3. The identification of the tubercle bacillus by Koch in 1882.

4. The demonstration of Koch's phenomenon in which the presence of this germ in the body caused the tissues to become sensitized, and the subsequent use of the tuberculin skin test in detecting infected individuals.

5. The discovery of x-ray by Roentgen in 1859.

Increased knowledge of tuberculosis gave impetus toward control of this disease. Since the discovery of tubercle bacilli by Koch, specific immunizations against tuberculosis have been repeatedly attempted.<sup>43</sup> All methods were discarded with the exception of BCG.

The bacillus of Calmette and Guérin (BCG) was isolated in 1902 by Nocard<sup>23, 37</sup> from a tuberculous mastitis in a heifer. One ten-thousandth of a milligram of this virulent culture of bovine tubercle bacilli killed a guinea pig weighing 400 grams in 60 days.

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This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Ikezaki is now serving his internship at Queen's Hospital, Honolulu, Hawaii.

Beginning in 1908, Calmette and Guérin at the Pasteur Institute of Lille, France, transplanted this culture on artificial media.

Calmette<sup>23, 32, 37</sup> planted a strain of this bovine tubercle bacillus on ox-bile-potato media. It was noted at that time that beef bile acted like soap, wetting the surface of the bacilli and making it possible to dissociate the organisms into almost single units. After this strain had been transplanted 230 times, the bacilli were avirulent but were still capable of sensitizing to tuberculo-protein the tissues of the animal into which they were introduced. After the first few transplants there was an increase in virulence. The development of this avirulent strain took 13 years. This strain became innocuous for calves and later lost its virulence for monkeys, and, after five years, for all laboratory animals.

The bringing about of this process may be attributed to mass mutation due to the presence of bile. Another possibility is that bile may have inhibited virulent organisms but allowed attenuated ones to grow, much the same as is suspected in the case of the addition of INH to growing cultures of tuberculosis.<sup>37</sup>

At this stage of development Calmette declared that it was a "virus fixe" and gave it the name "BCG" (Bacille Calmette-Guérin).<sup>23</sup> Experiments were begun in protection of animals, Guérin applying himself especially to cattle. By 1922 the results had been so uniformly successful that Weill-Halle ventured to give vaccine to infants.

BCG was first given by Calmette<sup>35</sup> per os in a teaspoonful of milk. The first dose was given within 24 hours after birth with two more doses 48 hours apart. Each dose contained 400,000,000 bacilli. This first vaccination was used a few days after delivery on an infant whose mother died of tuberculosis and who was reared by a grandmother who had an active case of tuberculosis.

Two early events that occurred in regard to BCG<sup>44</sup> led to a reluctance of physicians to accept the vaccine, especially in the United States.

In 1927 Petroff<sup>26</sup> shook the over-enthusiastic confidence in the new BCG vaccine by claiming that it was possible to dissociate a virulent type of colony. Petroff and his associates<sup>44</sup> dissociated BCG into rough and smooth strains and claimed that the smooth strain had the ability at times to produce progressive disease in animals. It is not possible by colony mor-

phology to differentiate unequivocally virulent from attenuated strains of the tubercle bacillus.<sup>37</sup>

Following increasing antagonism to BCG came the disaster in Lubeck, Germany, in 1930<sup>32, 37</sup> which caused the entire suspension of this vaccine in some countries.

On December 9, 1929<sup>18, 26, 32, 37</sup> a child was supposedly vaccinated with BCG, and on December 30 a second child received the same dose of these organisms. This was the beginning of a project in which half of the newborn children were to be vaccinated. The child who received his first dose on December 9, 1929, developed tuberculous cervical adenitis which was thought to be on a congenital basis. The child to whom the material was administered on December 30, 1929, remained in good health. The vaccine was thought to be entirely safe, and the project was begun. Between February 28 and April 28, 1930, about one-half (approximately 250) of all babies born in Lubeck received the usual doses of BCG by mouth during the first ten days of their lives.

Myers<sup>32</sup> writes, "A child died on April 17 who had been vaccinated only one month before. On April 20, 1930, a second child died and since the disease was most extensive in the lungs, and the vaccine had been administered orally it was assumed that it could not have been responsible and that the infection had probably occurred through the respiratory tract from exposure to the tuberculous mother. On April 25 and 26 two more children died, whereupon the vaccination project was immediately stopped. These supposedly vaccinated children continued to die until a total of 75 was reached on January 29, 1931. A number of others were definitely ill from tuberculosis."

Myers continues, "The vaccine was kept in a laboratory where there were also cultures of virulent strains of tubercle bacilli. Unfortunately, as soon as it was found that children were falling ill and dying, the physician in charge of the laboratory had all the cultures destroyed in order to prevent any possible use of this material. Thus it was impossible to study the organisms in the containers from which the children were vaccinated. However, organisms obtained at postmortem from the children dead from the vaccination revealed in most of them virulent bacilli thought to be the human type. From this it was deduced that either the original vaccine had been contaminated with virulent organisms or at least some of the children had received inoculations from other containers. . . ."

The trial of Doctors Altstaedt, Deycke, Klotz and Nurse Schutze began on October 12, 1931.<sup>19</sup> They were charged with responsibility for the deaths or bodily injury of infants who had been fed BCG. During Dr. Altstaedt's hearing he stated that he was

still convinced of the harmlessness of BCG. He therefore officially recommended the feeding of BCG in Lubeck and saw no reason why he should not do this. He enlisted the assistance of Dr. Deycke, who assumed responsibility for obtaining a culture from Paris and by culture could supply the necessary emulsions. He was assisted by Dr. Klotz and Dr. Janasch.

The prosecution charged that these workers paid no attention to reports in the literature warning against the feeding of BCG. In addition, the prosecution charged that Dr. Altstaedt failed to heed the Reich regulations of 1911 in regard to the use of vaccines and drugs.

It was assumed that Dr. Altstaedt was aware that for emulsions for the feeding of infants, cultures were also used which, contrary to the recommendations of Calmette, had been cultured on Hohné egg medium, which is supposed to increase the virulence of the cultures.

Dr. Altstaedt tried to show that recent literature supported his assumption that BCG was harmless and no longer supported the position taken by the Health Department of the Reich in 1927. He referred to the work of Lignieres, Lange, Berger, Heimbeck, Tzschnowitzer, Mehliis, and Buschmann. Buschmann had fed 205 infants with BCG with encouraging results.

Dr. Deycke was next heard. He was accused of having wanted to carry out experiments in Lubeck using human tubercle bacilli. This he sharply denied. Dr. Deycke stated, "In 1929 I was firmly convinced that the Calmette procedure was not only non-injurious but also useful. In the time since the Lubeck catastrophe I have come to realize on the basis of my own work and that of other investigators, particularly Petroff, that BCG-vaccine is not harmless."

He stated that he deeply regretted the misfortune which he found hard to bear after having devoted 30 years of work to the problem of tuberculosis control. He pointed out that not less than 208 authors had expressed themselves in favor of the immunizing effect of BCG. He attributed the catastrophe to a spontaneous increase in virulence of the BCG. He did not think a mistake in the cultures used or contamination had occurred in his laboratory. He had a long argument with Professor Ludwig Lange regarding the finding of human bacilli in the vaccine material.

Professor Klotz admitted that in the articles which he published in *Medizinische Welt* in May and June, 1930, he made serious errors especially in regard to figures published.

Professor Schurmann demonstrated the pathologic anatomy of tuberculosis and its variable form in the 53 children on whom he had performed autopsies. In 97.9 per cent of cases of feeding-tuberculosis which could be demonstrated almost exclusively in



the cadavers, the primary complex of the infection was found in the small intestine, in 75.5 per cent in the neck region as well, in 17 per cent also in the middle of the digestive canal or in the region of the esophagus, in 17 per cent also in the lungs. There were nearly always multiple primary infections. The cause of death in the great majority of cases was specific meningitis. On April 26, 1930, the autopsy findings in a child fed with BCG were demonstrated and showed the damaging effect of the inoculation material. The difference of opinion among physicians in regard to the effect of BCG did not make the best impression on the lay public.

In spite of great efforts on the part of all concerned to throw light into the darkness of the Lubeck castastrophe, little progress was made. No light was shed on the question of possible contamination of cultures in the laboratory. It became apparent that the puzzle never would be solved completely.

Dr. Altstaedt was convinced that the Lubeck vaccination material had been contaminated.

Kolle stated that since the effectiveness of the substance had not been demonstrated, it should not have been used for protective-feeding. That the use of hematin medium for culture purposes in Lubeck had caused a change in virulence was denied. Others rejected the idea of "virus fixe" but saw latent danger in BCG because of the possibility that for unknown reasons the bacillus could again become virulent.

In regard to the question as to whether BCG is harmless or injurious, no agreement could be reached.

Lange and Hahn<sup>19</sup> reported that the virulent bacilli found in the emulsion was identical with a human virulent strain which was obtained from Kiel at that time and which had been used in the laboratory for the preparation of partigen. They assumed, therefore, that contamination of the emulsion had taken place. The Kiel strain had in common with autopsy material cultures a peculiar growth on liquid media and a peculiar green coloration of a chloroform extract of the medium. It was brought out, however, that Professor Schurmann at that time was given the wrong autopsy material in one case. This confused the issue except to emphasize the negligent manner in which the pathologic institute of the hospital was run.

After 75 days of court session the verdict was read. The sentences were two years imprisonment for Professor Deycke and 15 months imprisonment for Dr. Altstaedt. Dr. Klotz and Nurse Schutze were found not guilty. The court decided that contamination of the vaccination material must have occurred in the Deycke laboratory although a spontaneous change in virulence of BCG was thought to be theoretically possible. In support of this assumption were

findings that demonstrated identity between the injurious bacilli and the Kiel strain.

Dr. Deycke, who had specialized experience in the study of tubercle bacilli for many years, was found guilty of the death of 68 children and the bodily injury of 131 additional children by carelessly distributing his vaccine material.

Dr. Altstaedt was found guilty in the same way because he had been responsible for preparation of the vaccine material and for its use. Failure to carry out animal experiments was also considered negligent, whether or not Calmette prescribed it. It was held that continuous controlled animal experiments should have been carried out so that contaminated vaccine material would be discovered before it was fed to infants.

The nurse was freed because it could not be proved that she had committed an error in technic. Dr. Klotz was considered not guilty in the Griese case because it was held that missed diagnoses are not punishable since they cannot be avoided in many cases.

However, the mystery remains. Events of this kind cannot be judged according to the articles of the penal code and belong to the realm of destiny.

Costantini<sup>12</sup> writes, "For four months the most difficult scientific problems which have been studied for decades by thousands of scientists all over the world were argued before a tribunal of laymen who were forced to decide in their ignorance on problems which science has not as yet solved, including bacterial mutations, culture media, allergic phenomena, anaphylaxis and immunity. The laymen had to decide whether spontaneous return of the Calmette vaccine to its original virulence is theoretically possible, whether such an event could be ruled out in the happenings of Lubeck."

He continues, "However, it is necessary to draw useful teachings from this error. Vaccination against tuberculosis is a problem of greatest importance but vaccination with living bacilli although attenuated in character is a delicate problem and the results should be evaluated carefully in order to avoid errors. The system must be perfected."

In leaving this historical aspect of the development of BCG and the Lubeck disaster, it may be of interest to recall what Calmette himself had reported in 1932. He stated<sup>8</sup> that BCG is administered orally in infants because of the great permeability of children's intestinal mucosa. Subcutaneous vaccination is preferred only for older children and adults. At the Pasteur Institute about 423,000 vaccinations were made in newly-born infants over a period of eight years. "There was a surprising decrease in fatalities during the first five years of life which were due to meningitis or other forms of tuberculosis." Calmette assumes, on the basis of various experimental work of other

writers, that in addition to a specific immunity, there was a "paraspecific" immunization in his inoculations.

## Discussion

Controversies in regard to the value of this vaccine are many. The literature is alive with continual opposition among two schools of thought, one group maintaining that the BCG vaccine is a detriment to tuberculosis control and the opposing group praising its high value.

Myers<sup>31</sup> feels that if BCG were highly efficacious, an abundance of convincing proof should be available after more than a quarter of a century of use and vaccination of many millions of people. It should not be controversial now. In nations where it has been most extensively used he has found no evidence of its effectiveness on tuberculosis mortality and morbidity. Greater reductions in these rates have occurred in parts of the world where BCG has not been introduced.

Myers<sup>32</sup> is not convinced that BCG is a factor in the decline in tuberculosis mortality in some cities where BCG has been used among children, his reason being that greater declines have occurred during the same time in cities such as New York where vaccine or BCG has not been used.

Hayes<sup>22</sup> likewise feels that to date the evidence in its favor has not been sufficiently convincing to justify its general use, although BCG has been administered to 10,000,000 persons during the last two or three decades.

Favorable results obtained in the use of BCG have been reported by many. The first child to be vaccinated with BCG had no ill effects. Pottenger<sup>35</sup> notes that despite the evident exposure of the child to environmental infection, no harm came to him.

In the British Isles, according to Malmros,<sup>29</sup> of 22,413 BCG-vaccinated persons during the period 1942-1947, only one developed tuberculosis pleuritis. This subject was tuberculin negative in spite of two BCG vaccinations.

Another favorable control program headed by General C. F. Sams<sup>10</sup> was inaugurated by the supreme command of the allied powers in Japan. As a part of that program approximately 31,000,000 persons had received BCG immunization up to May, 1949. The control program has resulted in a reduction in the mean annual death rate from 280 per 100,000 population in 1945 to 181.1 in 1948. Analysis of the death by age group indicates that the entire reduction has appeared in the age group immunized with BCG. The death rate in non-immunized groups has not been appreciably reduced during this period. Within the immunized groups the mortality has been reduced by 88 per cent.

BCG vaccination of a rapidly increasing population

of negative tuberculin reactors, intimately exposed to tuberculous infection, has become an established public health measure in Norway, Sweden, and Denmark since 1926. Birkhaug<sup>6</sup> states that this interest in BCG vaccination has in no way been allowed to interfere with established anti-tuberculosis measures, such as tuberculin surveys and mass x-ray examination for detection of tuberculous disease and controlled isolation and treatment of open cases of tuberculosis, in order to prevent the dissemination of tubercle bacilli. These vigilant measures have resulted in reducing tuberculosis mortality in Scandinavia from more than 250 per 100,000 population in 1900 to fewer than 70 in 1944. A proportional decrease in tuberculosis morbidity, however, has not been observed.

From an occupational standpoint nurses have close contact with tuberculous patients. In a four-year study<sup>23</sup> of 2,085 nurses who were enrolled in five schools of nursing the annual incidence of pulmonary tuberculosis was 6.7 per thousand. It was also shown that incidence of pulmonary tuberculosis among nurses with a negative tuberculin reaction on admission to school was six times that of nurses who reacted to tuberculin on admission.

Nurses were vaccinated with BCG and after one month were assigned to tuberculosis wards. Those not vaccinated were not assigned to tuberculosis wards and served as controls. Of 142 vaccinated nurses, none developed pulmonary tuberculosis during the period of observation. In 199 unvaccinated controls three nurses developed tuberculosis. Scandinavian work<sup>10</sup> suggests that a strong local reaction to BCG is correlated with a high resistance to subsequent superinfection with the human tubercle bacilli.<sup>18</sup>

Medlar<sup>30, 41</sup> points out the difficulties of assessing the value of vaccination with BCG in experimental animals under controlled conditions. This emphasizes the greater difficulties encountered in man because of the existence of uncontrolled and uncontrollable conditions.

In the United States, according to Pope and Chadwick,<sup>9</sup> two mass procedures unquestionably contributed to the control of tuberculosis during the period 1942-1945: the almost complete elimination of tuberculosis in dairy cattle and the widespread pasteurization of milk.

The efficacy of BCG for cattle has been omitted from the discussion up to this point. However, it was stated above that the rapid elimination of tuberculosis in dairy cattle in the United States contributed unquestionably to tuberculosis control. This was brought about without the use of BCG; thus veterinarians of the United States believe that BCG is unnecessary in control of tuberculosis in dairy cows.

Myers<sup>32</sup> cites the work of Dr. E. C. Shroeder of



the United States Bureau of Animal Industry who conducted experiments on BCG. Shroeder reported: "A number of persons seem to entertain the mistaken idea that the treatment of all dairy cows with BCG vaccine would at once eliminate the danger from tubercle bacilli in the raw milk of tuberculous dairy cattle. They should take into account that the vaccine does not cure tuberculosis, that it does not kill tubercle bacilli in the bodies of infected animals, that it does not prevent tuberculous animals from disseminating tubercle bacilli, that it does not prevent the development of tuberculous disease, that it does not prevent the animals from becoming infected with virulent tubercle bacilli, but that it does interfere with the tuberculin test to distinguish between safe and tuberculous animals."

Holms, according to Myers,<sup>32</sup> has the opinion that tubercle bacilli in milk have served as vaccination against tuberculosis in human beings. Because of the control of tuberculous cattle this "immunizing agent" is being taken away from children, and he brings forth the idea that a substitute must be found in BCG.

However, there are problems in application of the vaccination. Cummins<sup>13</sup> and Birkhaug<sup>7</sup> argue that BCG vaccine is impossible to guarantee as conforming to certain rules for standardization; it is a living vaccine and thus not permanently "countable" like the dead vaccines we permit.

The method of introducing vaccine is also considered. Oral vaccination is uncertain in its effect and no longer recommended.<sup>26</sup> Subcutaneous injections produce too high a proportion of abscesses both locally and in the regional lymph glands. Intracutaneous injection is better, and the percutaneous method has been widely applied.

Vorwald, Dworski, Pratt, and Delahant<sup>45</sup> have shown that BCG organisms may remain viable for at least 18 months in tissues of the guinea pig after they are injected intracutaneously. They point out that the chance of a spontaneous enhancement of virulence of BCG is still a possibility.

In this connection Jensen<sup>32</sup> has pointed out that the virulence of BCG changes and if the strain becomes too virulent, abscesses develop with alarming effects among those who receive it. On the other hand, virulence has been found to decline so that it does not even produce allergy.

Stone and Dufault<sup>43</sup> have also questioned the safety of the procedure, but no instance of virulent infection caused by the attenuated vaccine has ever been proved.

Myers<sup>32</sup> adds that although the statement is frequently made that BCG is harmless and that no case has been reported in which it has acquired virulence in man, there is a scarcity of evidence in the literature to support this statement. The number of lesions removed for biopsy or necropsy from vaccinat-

ed persons who have fallen ill or died from tuberculosis to determine this point is almost nil. In addition it is humanly impossible to determine this point.

However, in 1955, four fatal cases of supposedly progressive tuberculosis developed in three children and one young adult who had been vaccinated with BCG.<sup>37</sup> In all cases tuberculosis bacilli were isolated which did not produce progressive disease in guinea pig. Peterson<sup>34</sup> states that in these cases there can be no doubt that the BCG vaccine itself produced a progressive infection and this infection went on to a fatal termination in each case. However, these examples do not represent reversion to a virulent state, but a lack of host capacity to respond to the organism and therefore a progressive infection in spite of the fact that the vaccine is a relatively avirulent vaccine. Modern studies in agammaglobulinemia suggest that these patients were examples of this disturbance or an equivalent state in which they are unable to develop any of the resistance mechanism to infection with tubercle bacilli.

Collinson<sup>11</sup> reports ten cases of development of untoward local reactions following vaccination with BCG. In these cases BCG caused an inflammatory reaction, eventual caseation, and abscess formation in both the inoculation site and the lymph nodes draining the area. These cases required surgical intervention. Histological sections microscopically reveal collections of lymphocytes, epithelioid cells, and Langhan's giant cells, with few areas of caseation, typical of tuberculous granuloma.

In line with this discussion is the Lubeck disaster. Since Petroff's alarming discovery that BCG might be capable of producing progressive disease was eventually discounted, the Lubeck disaster, in which 75 infants out of 250 immunized died of generalized tuberculosis within a few months, was attributed to contamination or replacement of BCG culture by virulent tubercle bacilli. Hence Kayne, Pagel, and O'Shaughnessy<sup>26</sup> believe that BCG is completely safe for human beings.

According to Dubos,<sup>17</sup> it was because of a mistake that the babies were vaccinated with enormous numbers of living, virulent tubercle bacilli of the human type. Those babies that survived developed only minor lesions. When last observed 12 years later, the survivors were still free of tuberculosis.

Hayes<sup>22</sup> believes that the infants in the Lubeck catastrophe were fed the virulent Kiel strain of human type bacilli. Rosenthal, Blahd, and Leslie<sup>39</sup> report that the BCG cultures used in vaccinating the Lubeck children were most probably contaminated by a human strain of virulent tubercle bacilli that Professor Deycke in Lubeck had received from Kiel prior to the Lubeck program. This was ascertained from the fact that cultures of the organisms from the children who died, as well as from a few of the vaccine



ampules salvaged, produced a phosphorescent green color on Sauton's media. The Kiel strain produced the same discoloration, a phenomenon so rare that there could be little doubt as to the similarity of the cultures. In testing more than 200 virulent cultures from various sources, only two showed this discoloration.

One of the primary reasons voiced against the use of BCG vaccination is that it deprives the physician and public health official of the most effective means of early tuberculosis diagnosis. Dubos<sup>17</sup> believes that this would be of little consequence if vaccination gave promise of eradicating tuberculosis completely, but the vaccines now available are not sufficiently effective to justify such hope. Even when practiced under ideal conditions, however, vaccination never succeeds in completely preventing tuberculosis in the vaccinated group. Moreover, duration of immunity that it affords is still uncertain.

Tuberculin<sup>20, 24</sup> is a substance used in a simple skin test that was evolved by Robert Koch in his search for a vaccine or specific which would assist in the cure of tuberculosis. It disappointed its discoverer in that particular, but it has developed into an invaluable aid in diagnosis.

According to Pottenger,<sup>35</sup> BCG and heat-killed bacilli produce humoral antibodies and establish fixed cell sensitivity. This means, in case of reinfection, an increased ability to localize the bacilli and heal the focus; in other words, immunity.

However, a thought expressed by Myers<sup>32</sup> is that the tubercle bacillus is helpless in causing severe destruction of tissues or illnesses in the absence of allergy. Sensitivity of the tissues which results in the tuberculin reaction is the most important ally of the tubercle bacillus.

The theory<sup>44</sup> that a positive tuberculin reaction predisposes to reinfections is not compatible with a belief in BCG vaccination. In contrast the theory that the development of a positive tuberculin reaction indicates some degree of resistance to reinfection does explain the belief that BCG vaccination results in increased resistance.

Myers<sup>32</sup> writes that when Calmette began his work on BCG, our knowledge of the dangers of sensitization of tissues to tuberculo-protein was meager. Indeed, at that time most physicians still believed that a definite tuberculin reaction indicated immunity. Much excellent research has since been conducted on the subject of sensitization, which appears to have proved conclusively that sensitiveness of the tissues is a highly dangerous factor in the development of clinical tuberculosis. Moreover, it has been shown that sensitization is independent of immunity, that one may develop in the absence of the other and that the tuberculin test is not a test for immunity but only for sensitivity.

An important note in BCG efficacy is added by Myers: "Despite the fact that allergy to tuberculo-protein has not been proved to indicate the presence of immunity, it is the production of such allergy by BCG and its identification by the tuberculin reaction that is now used as the criterion of immunity."

According to Kayne, Pagel, and O'Shaughnessy,<sup>26</sup> the allergic reaction is not specific. Organisms other than the tubercle bacillus (*B. coli*, leprosy bacilli, pneumococci, spirochetes) evoke hypersensitive reaction in a tuberculous animal. They cite the experiments of Shwartzman, Bordet, Freud, and Much who found that intradermal injection of certain tuberculin preparations in guinea pigs gave reactions with filtrates of other bacteria when these were injected intravenously. These "heteroallergic" reactions do not occur unless considerable amounts of foreign organisms are injected. They may be explained by the fact that some non-specific agents used have antigens in common with the tubercle bacillus.

The above authors state that experiments by Pagel, Krehl, and Mathes showed that generalized tuberculosis altered the body in such a way that the response to all sorts of irritating agents was modified, the tuberculous animal being usually more susceptible than the healthy animal.

Kayne, Pagel, and O'Shaughnessy further point out that in tuberculous guinea pigs there is a suppression of the serum anaphylactic shock. The tuberculous foci, especially in the spleen and marrow, modify the formation of antibodies, and the animal responds as if it were not sensitized. Similarly, tuberculous animals cannot be infected with anthrax. All this has apparently nothing to do with specific tuberculosis allergy. The explanation is simply that the presence of foci in the organs alters the excretion of foreign material or toxin and the response to any supervening infection. In the same way tuberculosis may not develop or may be retarded after virulent infection in animals suffering from pasteurellosis or other diseases.

In the light of present knowledge Calmette's original premises seem unfounded. Myers<sup>32</sup> points out that Calmette believed that the bovine type of tubercle bacillus had low virulence for man. Therefore, he used this organism in producing BCG. Recent work has shown that the original premise was in error. Calmette also believed that he had produced a "virus fixe" with reference to virulence. This premise was not true. At that time there was a general belief that satisfactory immunity developed in tuberculosis. However, this premise was also in error, for a dependable immunity does not develop even from the presence of virulent tubercle bacilli in the human body.

Calmette's<sup>35</sup> oral administration is based on the fact that during the early days of life bacteria pass through the mucous membrane of the intestinal tract. The dose is given soon after birth to avoid

the possibility of the child having become infected; for, if infected, hypersensitivity might be developed and might cause the child to react violently.

However, Rich<sup>36</sup> points out the pertinent thought that the prophylactic administration of BCG, or vaccine made of killed tubercle bacilli, to newborn infants, as has been widely practiced, means that antigens are being applied to subjects who, in the light of all available evidence, have far less power of reacting to immunizing antigens of all sorts than have individuals at any other period of life. This should be taken into consideration not only in regard to the question of the proper age period for immunization but also in drawing conclusions as to the immunizing power of these vaccines from results obtained in newborn infants. Used at a later period their efficacy would, in all probability, be much greater.

Malmros<sup>29</sup> states that the newborn become tuberculin-positive after vaccination to the same extent as older children and adults, subsequently remaining positive for several years.

Recently Wagner<sup>46</sup> wrote, "The rationale of the use of BCG vaccine rests upon the observation, now clearly established both clinically and experimentally, that resistance to tuberculosis is acquired following a healed primary tuberculosis infection. In vaccination with BCG vaccine the objective is to substitute for the potentially hazardous and uncontrolled naturally acquired first infection with tuberculosis a benign infection which will convert the tuberculin reaction to positive and give some protection against subsequent infection."

Two of the best known "controlled observations," that of Aronson and Palmer<sup>10</sup> and that of Levine,<sup>28, 32</sup> will be presented. One observation gives favorable results for BCG; the other shows that BCG is of questionable value.

Levine reported on a study which was undertaken in December, 1926, by the Bureau of Laboratories of the New York City Department of Health. The children in this project were from tuberculous families and with few exceptions were placed under observation during the first five years of their lives. The study included 1,011 vaccinated cases and 1,073 controls.

It was observed during this study that there was a tendency to administer BCG to children of the more intelligent and cooperative parents who gave their children better care with reference to feeding, etc., and who followed all instructions more faithfully than non-cooperative parents. This routine was in effect until January 1, 1933, during which time 445 children were vaccinated and 545 were observed as controls.

The tuberculosis mortality for this period follows:

	<i>Number</i>	<i>Tuberculosis Deaths</i>	<i>Tuberculosis Mortality</i>
Vaccinated Cases	445	3	0.68 per cent
Controls	545	18	3.30 per cent

However, on January 1, 1933, the method of selection was changed, so that alternate children were vaccinated. Under this new method of selection, 566 children were vaccinated and 528 served as controls. The mortality rate for this period follows:

	<i>Number</i>	<i>Tuberculosis Deaths</i>	<i>Tuberculosis Mortality</i>
Vaccinated Cases	566	8	1.4 per cent
Controls	528	8	1.5 per cent

Thus, by this method of selection, no significant difference in mortality between the vaccinated and unvaccinated children was demonstrated. No change in exposure, in racial distribution, in economic conditions, or in number of cases lost was found to account for the difference in figures between the groups selected by different methods. There was no reason to feel that the vaccine was less active, since the local lesions developed as rapidly and reached the same size in similar periods of time in both groups; and the tuberculin tests developed and responded similarly.

On the other hand, Aronson and Palmer<sup>3, 10</sup> made an observation on North American Indians between one and 20 years of age. The vaccinated and control groups were equally exposed to subsequent infection. The results were as follows:

	<i>Vaccinated Indians</i>	<i>Control Group</i>
Total Number	1,551	1,457
Tuberculosis Deaths	4	28
Minimal Pulmonary Tuberculosis	8	20
Moderately Advanced Pulmonary Tuberculosis and Extrapulmonary Tuberculosis	9	48
Pleural Effusion	4	18
Hilar Adenitis	19	99
Parenchymatous Pulmonary Lesion	11	74

In this study vaccination gave some degree of protection against all types of lesions, but particularly against the more serious pulmonary and extra-pulmonary lesions. These results have been universally accepted as proof of the efficacy of vaccination for this racial group of known high susceptibility. A later report stated that there had been 55 deaths among the vaccinated, six of which were due to tuberculosis; there were 109 deaths among the controls, 53 due to tuberculosis.

Aronson<sup>3</sup> writes that from his studies there are indications that the use of BCG vaccine is a practical



and safe procedure giving rise to definite protection against tuberculosis.

Besides these two "controlled observations" there are other reports in the literature of today.

DeFriez et al.,<sup>15</sup> in a voluntary program of BCG vaccination of nurses, found no evidence that BCG offered any significant protection to tuberculin-negative student nurses. In contrast, Dannenbaum,<sup>14</sup> in reporting on BCG vaccination of infants within the first ten days of life, concludes that BCG vaccination during the neonatal period provides considerable, if not absolute, protection against tuberculosis if such children are not exposed to the disease until after the Mantoux test has turned positive. In the same tone Bethoux,<sup>5</sup> reporting a study over a period of ten years in 300 infants of tuberculous parents, concludes that BCG vaccination reduces not only the tuberculosis mortality but also the general mortality of the infants.

Dickie<sup>16</sup> in a report of 16 families in which some children were vaccinated with BCG and others were not, and in which all had been exposed to a known source of infection, states that the protective value of BCG vaccination is striking, both when the source of infection is within the family (with the maximum risk for each child) and when it is outside. Similarly, Gernez-Rieux et al.,<sup>21</sup> after vaccination of 15,000 children with BCG, state that their study also confirms the harmlessness and the great efficacy of vaccination with BCG used by scarification.

Abruzzi,<sup>2</sup> reporting on a survey of incidence among American medical students, reports that BCG represents an additive weapon against tuberculosis, particularly as this disease threatens the non-immune person when he encounters heavy tuberculous infection.

Stilwell<sup>42</sup> reported on a description of the technique of vaccination used and its results with respect to immediate changes in sensitivity to tuberculin. His group included student nurses, more than 90 per cent of whom reacted positively to tuberculin six weeks after vaccination. Lafay-Coletos<sup>27</sup> reported as follows on postvaccinal surveillance in infants vaccinated with BCG-S: At the sixth month, 158 tests, 134 positive results or 84.8 per cent; at the 18th month, 63 tests, 37 positive results or 58.7 per cent.

Bergqvist<sup>4</sup> made a study of attempting to heighten the effect of BCG vaccination with hyaluronidase. Because a larger local reaction is usually obtained when hyaluronidase is added, he feels that it is possible that the new method of vaccination might bring about an improvement in regard to both degree and duration in the state of tuberculin hypersensitivity.

Rosenthal<sup>38</sup> feels that although some differences in the various strains of BCG vaccine exist, these differences are not significant. With the advent of

freeze-dried form of BCG vaccine, it has become possible to completely standardize the vaccine before use; the viability, potency, and safety can be ascertained before it is distributed for human consumption.

BCG has been given to millions of people throughout the world and with time we may be able to see its true effect upon the primary disease process. We may in the future see tuberculosis in an altered form.

Orsini<sup>33</sup> reports an interesting case of a child vaccinated at birth with BCG by scarification because the child's mother had pulmonary tuberculosis prior to the delivery. At the time of the birth of the child she was cured perfectly. This child developed tuberculous meningitis, but the mode of onset was peculiar in that there was an onset of convulsive state during apparent complete health with apyrexia for several days. In spite of the fact that treatment was given late, a cure was obtained.

Irvine<sup>25</sup> estimates that about 145 million BCG vaccinations have now been administered in the world. In the world literature there are four reports of persons who died as the result of BCG vaccination. He states that between 1940 and 1949 in England and Wales alone there were 43 deaths from smallpox vaccination. Keeping the above in mind, if one accepts that BCG vaccine is reasonably safe and that the protection it produces, though not so complete as with smallpox vaccination or diphtheria inoculation, is worth while, why is it not advocated that everyone should be vaccinated? The reason is that, unlike antidiphtheria inoculation, BCG cannot be given to susceptible and immune alike. BCG vaccination, he feels, in the uninfected person is like smallpox vaccination in slow motion; if BCG is given to someone who has already been infected, Koch's phenomenon occurs.

There is no evidence<sup>1</sup> that meets strict scientific requirements demonstrating that BCG effects control of tuberculosis despite the suggestive results of a few studies.

## Summary and Conclusion

The literature on tuberculosis control with the use of BCG is discussed, and a brief account of the historical Lubeck disaster is given.

Starting with the work of Falk with tubercle bacilli and the isolation of the bovine tubercle bacilli by Nocard, many workers attempted to find an effective immunizing agent. The result was the work by Calmette and Guérin who produced an avirulent bacillus, now commonly referred to as BCG.

BCG was welcomed with great enthusiasm, but two events checked the spread of its use. These were Petroff's work in dissociating the bacilli into a smooth and rough strain, and the Lubeck disaster which resulted in the death of 75 children. The use of BCG



still continued and the controversy around it still persists.

Techniques of producing BCG and methods of evaluating it vary, depending on such seemingly irrelevant factors as country, state, medical school, and personal beliefs. There seems to be a similarity here to the Salk vaccine which is in its infancy now, relatively speaking.

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## BOOK REVIEWS

*An Introduction to the Study of Experimental Medicine.* By Claude Bernard, translated by Henry Copley Greene. Published by Dover Publications, New York City. 225 pages. Price \$1.50.

It would be wonderful if medical literature consisted only of scientific articles of primary importance and fundamental significance. Physicians could then keep abreast of the march of medicine without the necessity of subscribing to dozens of journals and wading through endless trash. Such a state of affairs would exist if all medical writers would study and accept the precepts of Claude Bernard, one of the founders of modern physiology and experimental medicine.

It would be pleasant to be able to report that this classic work of one of the masters could be wholeheartedly recommended as a thoroughly satisfactory, instructive, and pleasant book. As a matter of fact the first 150 pages (parts one and two) deal with the philosophy of experimental reasoning and medical research in an excessively wordy and tedious manner. It is ponderous and repetitious, sounding a great deal like Plato's *Republic* except that it is not so long, and is less entertaining in spite of the fact that it is more sensible.

When one gets to part three the situation is quite different. In this final section the master illustrates the principles of scientific reasoning and experimental medicine with examples from his own works. Here he duly emphasizes the part that erroneous hypotheses and chance observations have played in his work. It is here that the author permits the reader to participate in his thought processes.

It seems probable that the really good investigators realize their potentialities by "doing what comes naturally" and not by reading books like this, and probably fortunately so. On the other hand, most contributors to medical literature or most persons engaged in medical research do not "naturally" adhere to scientific principles in their work. If this group could be forced to follow the rigorously scientific precepts expounded at such great length in this book, medical literature would at one stroke be reduced to a reasonable volume, and improved immeasurably in quality.

This book can be recommended to practicing physicians with the understanding that part three contains the heart of the work—J.D.R.

*The Management of Childhood Asthma.* By Fred-eric Speer, M.D. Published by Charles C Thomas, Springfield, Illinois. 116 pages. Price \$4.75.

"A surgeon repairing a hernia does not invite the family in to assist him. A physician dealing with an asthmatic child, however, must do just that, and his success depends very much on his ability to gain the confidence of the parents and enlist their cooperation. To gain their confidence he must understand how they feel about their child, and to enlist their co-operation he must educate them in the fundamentals of allergy and asthma.

"Parents of allergic children regularly have the misconception that the solving of cases depends primarily on the performance of a long series of infallible skin tests. It is well to remind them that the practice of allergy is much like crime detection, and as the detective learns more from witnesses than from the 'crime lab,' the allergist learns more from the family than from skin tests."

These words by Dr. Speer so adequately express the theme of his manual that the reviewer felt obliged to quote them. Most parents of asthmatic children could understand this writing and would benefit by study of this work, and thus both the ill child and the responsible physician would be secondarily aided. In this fashion the text could be a useful therapeutic tool.—T.C.H.

*Physician's Handbook. Tenth Edition.* By Marcus A. Krupp, Norman J. Sweet, Ernest Jawetz, and Charles D. Armstrong. Published by Lange Medical Publications, Los Altos, California. 488 pages. Price \$3.00 (paperback).

For nearly 20 years this handbook, now in its tenth edition, has been a favorite among medical students during their clinical clerkships as well as among internes and residents. It is obviously not a book that was meant to be read straight through, but rather was intended as a reference manual. There are chapters on history taking and physical examination, neurologic diagnostic aids, examination of the heart, peripheral blood vessels, x-ray, electrocardiography, surgery, diet, vitamins, fluid and electrolyte balance, and so on until the 30th chapter on drugs and hormones. Textual material is telegraphic, and the book is dominated by tables. Illustrations are limited to line drawings.

While the *Physician's Handbook* is obviously of primary interest to students and house officers, there is probably no physician who would not frequently find helpful material in it if he kept it handy and made a practice of referring to it.—J.D.R.



*Handbook of Medical Treatment. Sixth Edition. By Milton J. Chatton, Sheldon Margen, and Henry Brainerd. Published by Lange Medical Publications, Los Altos, California. 568 pages. Price \$3.50.*

Following in the footsteps of its older brother, the *Physician's Handbook*, which emphasizes problems in medical diagnosis, this handbook on medical treatment was designed to serve as a guide to medical students and physicians in the treatment of their patients after a diagnosis has been established or in the symptomatic and supportive treatment of patients who are undergoing diagnostic workups. There are 23 chapters covering general aspects of medical management, general symptomatic treatment, fluid and electrolyte therapy, diseases of the various organ systems, the treatment of infections and intoxications, etc.

In line with the purpose of the book to present a maximum of factual information in a minimum of space, topics are covered in outline fashion and with extremely brief comments which will probably be more effective as reminders of things once understood but now vague, rather than as an adequate exposition of new material. A physician will be well advised to seek more information in a standard book on pharmacology or therapeutics when this manual does not make the subject entirely clear. In a book of this size there is little room for discussing the "pros and cons" of any subject, and the book was certainly not intended to take the place of larger works which explore problems of therapeutics in more detail. It is hoped that those who use it will not be tempted to accept it as final authority.

The drugs in the handbook are listed by their official names with common or proprietary names given in parentheses when these are considered helpful. The outline presentation is adequately supplemented with numerous tables. One can predict that the handbook will continue to be popular among medical students and house officers, but such a wealth of material as it contains should also be of use to practicing physicians. It is the sort of book which might well be kept in the glove compartment of the physician's car.—J.D.R.

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*How to Live with Diabetes. By Henry Dolger, M.D., and Bernard Seeman. Published by W. W. Norton and Co., Inc., New York, for Upjohn Company. 192 pages. Price \$3.50.*

This book is divided into three parts. First, diabetes in general is discussed. The second portion deals with the management of diabetes. The third portion

deals with special problems in diabetes. The book is written in a very interesting manner and is quite informative.

First, a rather detailed history of the discovery of diabetes is given, and the incidence of diabetes and the role of overeating and heredity in the development of diabetes are discussed. The characteristics of childhood and adult diabetes are pointed out, and the manner in which each type usually develops is explained. The authors give an unusual amount of detail regarding the dietary treatment of diabetes before the discovery of insulin.

The difference in opinion as to the degree of rigidity of dietary control is pointed out and Dr. Dolger seems to be at least moderately liberal on this score. He feels that some physicians are too dogmatic with regard to the patient's diet. For example, he would on the one hand not allow juvenile diabetics to have concentrated sugar such as soda pop, candy, and jams but would permit ice cream, cookies, and puddings.

A rather complete history of the discovery of insulin is given, and the different types of insulin available are discussed thoroughly. A careful program is outlined for the diabetic to follow in daily care of his syringe, the insulin, and the tests for sugar and acetone. The background of the development of Orinase is also explained in considerable detail.

The author's opinions as to the criteria for good control are:

- (1) The diabetic must feel well;
- (2) Normal weight must be maintained;
- (3) There should be just enough insulin and dietary restriction to assure proper utilization of food without producing insulin reactions;
- (4) Treatment is simplified so far as possible so that the diabetic can live and work with an absolute minimum of interference from the needs of his disease, and
- (5) The diabetic should maintain sugar-free urine or the smallest amount of sugar in the urine possible. Considerable advice to parents and to the diabetic child and the doctor is given. Generally, he believes the child should be giving himself his own insulin and caring for his syringe at the age of eight or nine. The emotional problems which are so common with juvenile and adolescent diabetics are considered.

The book is concluded with a short chapter on possible future developments in relation to diabetes with special reference to research. This book would be of value to both the practicing physician and the patient with diabetes. It should be of especial interest to both patients and doctors who have an unusual interest in the historical background of present day problems.—T.J.L.



*The Psychology of Medical Practice.* By Marc H. Hollender, M.D. Published by W. B. Saunders Company, Philadelphia. 276 pages. Price \$6.50.

The authors have made a sincere and successful attempt to answer those questions that are frequently asked of the psychiatrist by the internist, obstetrician, gynecologist, or other specialist with regard to using those psychiatric principles that are applicable to the non-psychiatric patient.

Such questions as whether a given patient should be told that he has cancer and a poor prognosis, and if so, how this information should be imparted to him; how should the young married couple be warned of an obstetrical complication without getting them unduly concerned; how should many of the problems in regard to handling the coronary patient or the family of the coronary patient be approached, what should they be told, how much should they know and what is the best manner in which to impart this information. There are separate chapters dealing with nearly every specialty.

It is refreshing to find a book of this type that was not written for psychiatrists and makes no attempt to make a psychiatrist out of the man working in other fields of medicine. It simply offers those suggestions of psychiatric origin that seem applicable to the non-psychiatrist's discipline in dealing with just ordinary, non-psychiatric patients and helping him make his line of therapy more effective. There are many tools that all of us in medicine use in common. For example, aspirin and hot packs are often used by the surgeon on infections, by the internist on inflamed joints, and even by the psychiatrist on muscle spasm of psychogenic origin. We often use these and other measures purely symptomatically. They reduce the patient's pain, they reduce his anxiety, and increase his general comfort.

This book is aimed at helping the doctor keep the patient's and the family's anxiety at a minimum in order that they may be able to better cooperate with the therapeutic procedures that he has to offer. It is aimed at helping the doctor develop the art of medicine, rather than any particular psychiatric skill, and I feel it is well worth reading.—T.L.F.

*Modern Clinical Psychiatry.* By Arthur P. Noyes, M.D., and Laurence C. Kolb, M.D. Published by W. B. Saunders Company, Philadelphia. 694 pages. Price \$8.00.

This is a standard authoritative text of psychiatry. It is written primarily for those who wish to systematically study clinical psychiatry and neurology, but it should be useful to every physician as a desk

reference. The chapter headings are clear and follow the diagnostic and statistical manual on mental disorders. It is well-indexed, and treatment recommendations are practical and specific. This revision includes a chapter on psychiatry and the law.—P.W.T.

### TV Story on Human Senses

The Bell System Science Series will present its second television program devoted to the working of part of the human body in "Gateways to the Mind," the story of the human senses, which will be seen over the NBC network on Thursday evening, October 23. "Hemo the Magnificent," an earlier program in the same series, was devoted to the story of blood and the circulatory system.

Some 14 different senses are discussed in "Gateways to the Mind" in explaining how the senses function as the channels through which all knowledge of the external world is passed to the brain. Both scientific documentary film and animation are used in the program. Much of this material will be new to the general public.

Dr. Wilder Penfield, Montreal brain surgeon, appears on the program to explain his work in exciting sensations by direct stimulation of the brain. Dr. Hadley Cantril, Princeton University psychologist, discusses some of his experiments in sensory illusions on the telecast.

Dr. George Wald, professor of biology at Harvard, was principal advisor on the production of "Gateways to the Mind," and Dr. Frederick Cresti-telli, professor of zoology at U.C.L.A., served as consultant. The program was produced for the Bell System by Warner Brothers and stars Dr. Frank C. Baxter, who has appeared in the four earlier programs of the series. The Scientific Advisory Board, composed of ten American scientists, had general supervision over the production.

After its telecast on October 23, "Gateways to the Mind" will be made available on 16 mm. color film by Bell Telephone companies for group showings to interested organizations.

Cancer accounts for one out of every six deaths in this country annually, according to the publication *Patterns of Disease*, prepared by Parke, Davis and Company for the medical profession. The disease has jumped from seventh place to second in U. S. mortality tables in the last 50 years. If the present rates continue, the annual death toll from cancer will double within the next 50 years, "in part due to an increase in the population."

## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### LEGISLATORS AND THE MENTALLY ILL

We are glad to report that at least one member of the Kansas Legislature has an enlightened social conscience.

Several days ago we again voiced a protest against the medieval and barbarous treatment of the mentally ill in Kansas. Under the law, persons believed to be mentally ill are held in county jails until room is found for them in a state hospital.

Rep. Lawrence D. Slocombe of Peabody said in a letter to the editor: "How would you suggest the Kansas Legislature correct this situation? I am sure the Kansas Legislature does not recommend this type of procedure."

The first step in improving the lunacy laws is to recognize that mental illness is primarily a medical problem. A deranged man is a sick man.

The legislators can quite easily discover the basic principles for more moral and humane legislation. All they have to do is ask for recommendations from the leading psychiatrists, the Kansas Medical Society, the Mental Health Association and other interested groups. Law enforcement officers, who have long been bedeviled by their unwilling role as amateur psychiatrists, and judges could also tell the legislators a thing or two.

It is obvious that sheriffs and policemen are not qualified to care for the mentally ill. It may be necessary for law-enforcement officers to restrain the violently deranged. Their duties should cease at that point. The mentally ill should be cared for in hospitals, not jails.

Much unnecessary suffering, shame and tragedy result from this custom of jailing the disturbed. Not long ago, a pretty little high school girl was held in jail for many days. The child was rational most of the time. She was overwhelmed with panic, shame and confusion at being locked up. The matron did her best to comfort the girl. Nevertheless, the patient's mental condition rapidly worsened because of the jail experience.

Kansas lunacy laws reflect the medieval notion that insanity is somehow willful wrong-doing. No enlightened person believes that today. Why does the Legislature continue to keep legislation that nobody

wants and that is directly opposed to the public interest?—*Wichita Beacon, September 4, 1958.*

### MEDICAL CARE

Reno County is losing the physician who has been employed full time to care for those on the welfare rolls. It is unlikely that a successor can be found. There are too many patients for a single doctor to minister to adequately. The rewards for caring for that large a clientele in private practice are much greater.

So Reno County, whether any one prefers it or not, will be forced into some form of socialized medicine for safeguarding the health of its welfare clients. A contract likely will be made with the County Medical Society or a group of its members for them to provide the service for a monthly per capita fee.

Far from being objectionable, such an arrangement should result in improved medical care for those on various forms of relief. They will be ministered to by physicians of their own choice. The better care will naturally have a higher cost, but that is inevitable.

This introduction of socialized medicine, under whatever other name it may be called, however, raises questions involving an issue of long debate. If it is desirable to levy taxes to pay for the medical care of those on the welfare rolls, and for the military and their dependents, is it undesirable to levy taxes to pay for the care of everyone?

If the solution of the problem is better found through voluntary health insurance programs, should not Blue Shield and Blue Cross be expanded to cover all necessary health and hospital services rather than only enumerated ones?—*Hutchinson News, September 4, 1958.*

### QUACK DOCTORS CAN KILL YOU

False hope is the easiest commodity to sell. Frightened, ignorant and gullible people always dig deep into their jeans to buy a wonder drug, a cure-all or a magic food.

Time was when the quack depended on a crude and colorful pitch. One does not have to be elderly to remember the medicine show. The "doctor" would set up shop in a vacant lot at the edge of the village. Real live Indians with feathers danced to tom-toms. The villagers and farmers, starved for entertainment, came in a multitude.

The "doctor" delivered an eloquent plea for his snake oil or Indian elixir. He promised cure for everything from dandruff to heart disease. His medicine generally was just alcohol to which flavors had been added.

The modern quack uses more sophisticated methods. He talks learnedly of science and research. He tells his victims that he has secret cures, medicines and diets. He implies that there is a sinister plot to keep him from making people well. What would doctors do for a living if everybody had good health?

The horror of quackery is that it gives its victims false hope. They do not seek genuine treatment until it is too late. Worst of the quacks are those who promise cancer cures. Cancer in its earliest stages can often be cured; if the victim wastes time on phony treatments, medical science cannot save him.

How can one tell a quack from a true physician? There are several reliable ways:

1. No reputable physician has secret treatments known only to himself. Physicians share their knowledge. Scientific information is available to all members of the profession.

2. No reputable physician guarantees cures. He merely guarantees to do all in his power to help the patient.

3. No reputable physician offers testimonials from cured patients. Testimonials are always worthless. Most sick people get well or improve, with or without a physician. Those who die cannot tell their opinion of the treatment.

How can the layman determine whether a treatment or diet or health fad is a dangerous hoax or worthless fraud? Well, the best thing to do is to go to a real doctor—one who graduated from a respected school for physicians, who makes no extravagant claims, who is trusted and honored by his patients and the community—and ask him.

Or, if the layman belongs to that tiny minority that "doesn't trust doctors," let him call the Better Business Bureau, an organization which specializes in getting the facts about all sorts of phonies, racketeers and swindlers in the business world.

Hope can keep you alive. But false hope can kill you before your time. Don't be a victim.—*Wichita Beacon, September 14, 1958.*

### Hospital Needs of the Aged

The House of Delegates of the American Hospital Association, meeting in Chicago recently, adopted a statement of policy with respect to meeting the hospital needs of the aged. The statement, which supersedes all previous actions taken by the association, follows:

1. The American Hospital Association is convinced that retired aged persons face a pressing problem in financing their hospital care.

2. It believes that federal legislation will be neces-

sary to solve the problem satisfactorily. It has, however, serious misgivings with respect to the use of compulsory health insurance for financing hospital care even for the retired aged.

3. It believes that all possible solutions must be vigorously explored, including methods by which the dangers inherent in the Social Security approach can be avoided.

4. It believes that every realistic effort should be made to meet the hospital needs of the retired aged principally through mechanisms utilizing existing systems of voluntary prepayment. However, it is conceivable that the use of Social Security to provide the mechanisms to assist in the solution of the problem of financing these needs may be necessary ultimately.

5. It believes that any legislation developed to provide for government participation to meet the hospital needs of the retired aged should be so devised as to strengthen the voluntary prepayment systems, and should conform to the following principles:

- a. Legislation designed to provide for the hospital needs of the retired aged should provide essential hospital services and should exclude custodial care provided for nonmedical reasons.

- b. Government participation should be restricted to persons over 65 who are not regularly and substantially employed. The voluntary prepayment system provides a satisfactory mechanism for the coverage of other persons, regardless of age.

- c. Any program in which the federal government participates to meet the hospital needs of the non-indigent aged should emphasize individual responsibility and make the application of a means test unnecessary for obtaining benefits.

- d. Such a program should be based on the service benefit principle and should provide benefits sufficiently comprehensive to remove the major economic barriers to hospital care for the retired aged.

- e. Such a program should make benefits available through nonprofit prepayment plans.

- f. Hospitals should be paid fully for the cost of care rendered.

- g. Such a program should not provide services in facilities operated by the federal government.

- h. Such a program should provide reasonable criteria to determine the eligibility of hospitals to participate, but the federal government should be precluded from interfering in the administration and operation of hospitals providing the services.

- i. Such a program should maintain the free choice of doctor and hospital by the recipient.

- j. Such a program should permit and encourage continuous adaptation to new knowledge in the provision of services.



## ANNOUNCEMENTS

Pediatric fellowships available to physicians through Wyeth Laboratories, effective July 1, 1959. Annual stipend of \$2,400. Information available from Dr. Philip S. Barba, University of Pennsylvania School of Medicine, Philadelphia.

Three conferences during winter season at British Colonial Hotel, Bahamas: Sixth Bahamas Medical Conference, November 28-December 18; First Bahamas Surgical Conference, December 29-January 17; Serendipity Session, January 18-31. Reservations may be made through Bahamas Conferences, P. O. Box 4037, Fort Lauderdale, Florida.

Twenty-fifth (silver anniversary) meeting, American College of Chest Physicians, Atlantic City, New Jersey, June 3-7, 1959. Interim session, November 29-30, 1958, Rochester, Minnesota. Eleventh annual postgraduate course on diseases of the chest, Park Sheraton Hotel, New York City, November 10-15, 1958. Information available from the College, 112 East Chestnut Street, Chicago 11, Illinois.

American Goiter Association offers Van Meter prize award of \$300 for best essays submitted concerning problems related to the thyroid gland. Deadline, January 15, 1959. Information available from the association, 149 1/2 Washington Avenue, Albany 10, New York.

Calendar of courses available at University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado: October 30-November 1, Western Institute on Epilepsy; January 19-24, General Practice Review; March 16-21, Medical Technology; May 14-16, Neurology; May 21-22, Colorado Intern-Resident Clinic; June 15-19, Internal Medicine; June 22-27, Clinical Hematology; July 6-8, Obstetrics and Gynecology; July 6-9, Ophthalmology; July 16-18, Dermatology for General Practitioners; August 10-15, Western Cardiac Conference; August 24-26, Prevention and Management of Athletic Injuries; September 10-15, Pediatrics.

International College of Surgeons, 24th Annual Conference of North American Federation, Palmer House, Chicago, September 13-17, 1959. Write Dr. Ross T. McIntire, 1516 Lake Shore Drive, Chicago 10, Illinois.

Department of Medicine, Menorah Medical Center, 4949 Rockhill Road, Kansas City 10, Missouri, announces 1958 A. Morris Ginsberg Memorial Seminar. Dr. Sol Sherry, professor of medicine, Washington University, St. Louis, guest lecturer. Write Dr. Morton C. Creditor, director, Medical Education and Research, Menorah Hospital.

Kansas Board of Basic Science Examiners will give examinations in anatomy, bacteriology, chemistry, pathology, and physiology, November 24-25, Wahl Hall, University of Kansas Medical Center, Kansas City. Applications accepted until 30 days prior to examination. Application blanks available from L. C. Heckert, secretary of board, Pittsburg, Kansas.

### Future Needs in Medicine

Expenditures for medical research in this country can and should be tripled to reach a billion dollars a year by 1970, a group of special consultants to the Secretary of Health, Education, and Welfare said in a report released today.

The consultants warned, however, that a medical research effort of this magnitude will require a major increase in the number of physicians and other scientists engaged in medical research—from 20,000 now to 45,000 by 1970.

They also said that funds for construction of medical schools will be needed "on a much larger scale than has heretofore been contemplated" and that even if large funds are provided "it seems certain that the number of physicians per 100,000 population will decline" during the next 12 years.

The report was presented to Secretary of Health, Education, and Welfare Marion B. Folsom, who appointed the group about a year ago to advise him on long-term needs in medical research and medical education.

Ten prominent medical educators and industry research executives participated in the study. Chairman of the group was Dr. Stanhope Bayne-Jones, formerly dean of the Yale University School of Medicine, president of the Joint Administrative Board of the New York Hospital-Cornell Medical Center, and technical director of research, Office of the Surgeon General, Department of the Army.

"The expansion of medical research and education required in the national interest will be costly and should not be restricted by lack of funds," the report states.

"The consultants believe it conservative to project total national medical research expenditures of \$900 million to \$1 billion per year by 1970, as compared with \$330 million in 1957."

But the medical schools of today, the consultants emphasized, cannot turn out enough doctors both to provide sufficient staff for a research program of this scale and to meet growing medical care needs of the expanding population.

The consultants expressed the belief that "it would not be in the public interest for the number of physicians in the nation to fall below the ratio of 132 for each 100,000 persons in the population."

"This ratio," the report points out, "has remained constant (plus or minus two) over the past 30 years."

Maintaining this ratio, the report states, would involve the construction of from 14 to 20 new medical schools at a cost of between \$500 million and \$1 billion.

Pointing out that there is usually a lapse of about 10 years from the time a school is planned until the first class is graduated, the report explained, "even if funds in the order of \$500 million to \$1 billion were made available immediately for construction of new medical schools, it seems certain that the number of physicians per 100,000 population will decline between now and 1970. Unless there is a marked change in social philosophy leading to private gifts or state appropriations on an unprecedented scale, large federal appropriations will be required."

The consultants suggested that the federal government continue to provide about half of all funds for medical research. On this basis, federal expenditures would increase from \$186 million last year to approximately \$500 million by 1970.

Industry's share of last year's medical research costs was estimated at \$90 million and contributions of private philanthropy at \$35 million, but the committee said that both estimates were probably low. Income from endowments was about \$19 million.

The committee's projections call for annual expenditures of more than \$300 million by industry and for contributions of more than \$100 million by private philanthropy by 1970.

The report notes that the portion of the nation's gross national product spent for research and development of all kinds rose from .2 per cent in 1930 to 2.3 per cent last year and can be expected to rise gradually to 4 per cent by 1970.

Projected increases in expenditures for medical research, the report states, are "based on the assumption that the proportion of all research and development expenditures represented by medical research will remain constant at the average for the past decade—3.8 per cent."

The committee said that according to present estimates there will be only 3,200 additional physicians and 16,000 additional Ph.D.'s available for medical

research during the next 12 years—almost 6,000 short of the 25,000 additional trained workers needed to staff a billion-dollar-a-year research program.

However, the consultants said that "it should be possible to produce 20,000 scientists with Ph.D. degrees who will enter medical research" by 1970 and that it is "quite possible that . . . the proportion of physicians who elect essentially full-time careers in research will rise."

The report recommended increases—in many instances "substantial" ones—in virtually all programs of the Department of Health, Education, and Welfare involving medical research.

The report points out that the Public Health Service's National Institutes of Health at Bethesda, Maryland, operates "the largest group of medical research laboratories in the world."

These direct operations, together with the large grant programs which support medical research and training in institutions throughout the country, "have over recent years exerted the most important single influence upon the dimensions of American medical research," the report states.

"The consultants are of the opinion," the report states, "that the system evolved for the administration of research and training grants is sound, and that the system has been operated well."

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### P.H.S. Grant to Squibb

A grant of \$190,063 to E. R. Squibb and Sons, New York, to produce unusual androgens and other hormonal substances, was announced last month by the U. S. Public Health Service as part of a program involving \$859,442 allocated to two pharmaceutical firms and five research organizations. A second Squibb contract, amounting to \$81,015, is for evaluating hormonal substances and anticancer agents in animals and for seeking new methods of studying interrelationships between tumors and the endocrine system.

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One hundred thirty-five medical, dental, engineering, science, nurse and veterinary students from 120 approved four-year professional schools spent the summer months in U. S. Public Health Service facilities under the Service's year-round training program.

The program is known as COSTEP, for Commissioned Officer Student Training and Extern Program. Assignments under COSTEP are open each year to students who complete either their second or third year of professional education on or before July 1 and who are interested in becoming Reserve Officers in the Service's Commissioned Corps.

Two students from the University of Kansas School of Medicine, Joseph C. McDaniel and Robert O. Settle, participated during the summer of 1958.

### Technique in Heart Valve Surgery

A technique for evaluating the effects of heart-valve surgery while an operation is in progress has been developed by a team of surgeons and cardiologists at the Public Health Service's National Heart Institute in Bethesda, Maryland.

With this technique, direct measurements are made of the heart's output of blood and of differences in pressure on each side of stenosed valve openings just before and after these openings are surgically enlarged.

The new technique allows a more precise and immediate evaluation of the results of heart valve surgery than has previously been possible with conventional techniques, by which pressures and output of blood are measured before and after an operation but not during it.

By making these measurements while an operation is being performed, the new technique tends to eliminate the influence of all variables except the critical one—the size of the valve opening. It gives the surgeon a better idea of how much of the valve's function has been restored and lets him know whether to enlarge the valve opening still further during the same operation.

The new method is applicable in operations for stenosis of any of the four valves of the heart. Its value was demonstrated in studies of 24 patients undergoing valve surgery at the Heart Institute (18 with mitral, four with aortic, and one each with pulmonic and tricuspid valve stenosis).

The new technique was developed by Doctors Herbert Tanenbaum, Eugene Braunwald, and Andrew Morrow of the Heart Institute Clinic of Surgery.

After exposing the heart to view, the Heart Institute team measures pressures simultaneously in the chambers immediately upstream and downstream from the diseased valve by puncturing these chambers with fine (20-gauge) hypodermic needles. The needles are attached directly to two hand-held pressure transducers, which change the pressure pulses coming through the needles into electrical pulsations.

The pulsations from both transducers are projected as two parallel tracings moving across the screen of a cathode ray oscilloscope. The difference between these synchronized pressure tracings reflects gradient across the diseased valve.

The effect of the surgery in relieving the abnormal pressure gradient is apparent when these measurements are repeated immediately after the surgeon opens the heart and inserts his finger (or an instrument) into the valve opening to enlarge it.

To determine the heart's output of blood just before and after this valve manipulation, the Heart Institute team injects measured amounts of a special

blue dye directly into either the pulmonary artery or the left atrium, which carry the blood from the lungs to the left ventricle to be pumped to all body tissues.

As it circulates through the heart and out into the arteries, the dye-containing blood is drawn at a constant rate from an arm artery through a densitometer (a photoelectric device that detects the dye concentration). The concentration of the dye and its transit time through the circulation are also projected visually as a "dye dilution curve." The characteristics of this curving line indicate the output of blood from the heart.

In the past, accurate evaluation of the results of commissurotomy has been dependent on measuring pressure gradients through a flexible plastic catheter tube threaded into the heart from outside the body during the periods before and after the operation. During these comparatively lengthy and eventful intervening periods, factors other than surgery on the valve—such as variations in the patient's medical therapy, stress and rest experiences—can alter the pressure and flow patterns within the heart and thus mar the precision of the evaluation data.

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### Testing for Fire Hazards

Testing hospital operating rooms for fire hazards is a vitally important safety measure which needs fire department attention, according to *Firemen Magazine*, internationally circulated publication of the National Fire Protection Association.

Writing in the September issue of the magazine, NFPA Gases Engineer Clark F. Jones details methods for fire officers to use in checking hospital operating rooms. The article particularly deals with ways to measure electrostatic charges which can ignite flammable anesthetic agents.

Fire department officers as well as hospital authorities in particular have to be well informed on such fire prevention measures, Jones says, for there are fundamental, important procedures that must be followed for fire safety in operating rooms. His article in particular tells how to use an ohmmeter to test electrical resistance as recommended in nationally accepted standards.

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Pedestrian fatalities reached 7,500 and injuries reached 22,000 last year. Over 34 per cent of pedestrian deaths resulted from crossing in the middle of the block, a total of 2,600 persons.

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In 1955, 2,158,000 persons were injured in motor vehicle accidents.



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## Care of the Newborn

### *An Outline of Standards in Kansas*

#### I. Introduction

The following standards and recommendations for hospital care of newborn infants is based upon *Hospital Standards, Rules and Regulations*, Third Edition, 1953, published by the Kansas State Board of Health, and the booklet, *Hospital Care of Newborn Infants*, published by the American Academy of Pediatrics, with the approval of the American Academy of Obstetrics and Gynecology, 1954, revised, 1957, with the approval of the American Academy of Obstetrics and Gynecology; the American Committee on Maternal Health; the section on Maternal and Child Health of the American Public Health Association; the American Hospital Association; the National League for Nursing; the Children's Bureau of the Social Security Administration; the Department of Health, Education and Welfare, and the Section on Pediatrics of the American Medical Association.

It is our purpose here to delineate a set of standards for the care of newborn infants residing in hospitals in the state of Kansas. We are defining procedures which will safeguard the infant's physical well-being and promote normal relationship between him and his environment.

It is our hope that this material can be applied to all hospitals in Kansas for the improved care of newborn and premature infants.

#### II. Environmental Factors

Group care of newborn infants in hospitals is a comparatively new procedure, the history of which

is studded with outbreaks of epidemic disease. Experience has shown that nurseries *can* be operated safely if they are carefully designed and provided with generous amounts of space. In planning new units, there should be close cooperation between the architect and the medical and nursing staff—and the state health department if there are any major problems. Old units should be continuously revised and remodeled until they meet accepted standards.

#### *A. Design of Nursery and Physical Facilities of the Nursery*

##### 1. MAIN NURSERY UNITS

A standard main nursery unit will consist of an anteroom and one or two (but not more than two) nurseries proper. It should be located conveniently in the maternity unit so that babies may be taken back and forth to their mothers without undue travel, and preferably away from major traffic areas to reduce potential contamination. It should always share the maternity unit's relative isolation from non-maternity patients and their hazards for infection.

a. Capacity. The total number of bassinets provided should be approximately 15 per cent greater than the total number of beds in the maternity unit (so that twins and premature infants may be cared for when the unit is operating at capacity).

Small nursery units should be provided as they limit exposure in case of a disease outbreak and impose a desirable pattern of nurse staffing. A nursery *may not* house more than 12 newborns in Kansas, and a total of eight is preferred.

b. Size. A generous provision of space is a necessity in the nursery. Room must be allowed to permit a two-foot spacing between bassinets on all sides, so that a nurse can conveniently care for one

Prepared by the Committee on Child Welfare of the Kansas Medical Society through a sub-committee composed of Dr. William H. Crouch, Jr., Topeka; Dr. H. P. Jubelt, Manhattan; Dr. Geoffrey M. Martin, Topeka, and Dr. Theodore E. Young, Topeka.

baby without touching anything that pertains to another, and to minimize air-borne cross infection. Hospital construction regulations require a *minimum* of 25 square feet per bassinet, but the provision of 30 square feet is considered more desirable and a worthwhile investment in safety (particularly when premature and full-term newborns will be cared for together in the same room).

c. Design. The design problem revolves around the close supervision of a number of babies by a limited nursing staff, and includes the necessity of "showing" the babies to the public at regular intervals. Square nurseries, ranged on either side of an anteroom and having glazed corridor walls, offer the best solution. Irregular shapes should be avoided. A maximum use of glass walls between nursery and anteroom is recommended, to extend the supervision of the nursing staff (a matter of particular importance in the case of premature infants).

d. Lighting. Nurseries should have sufficient window area to make them livable for the nursing staff, and sufficient artificial lighting to provide 20-30 foot candles of light in all parts of the room. Either incandescent or shaded fluorescent fixtures may be used. Particular attention should be given to the painting of the walls and ceilings so that (1) the illumination is free from glare, and (2) the light on the babies is essentially a white light which permits easy observation of cyanosis and other color changes.

e. Ventilation, Heating and Air Conditioning. Adequate ventilation will perceptibly reduce air-borne cross infection in the nursery. There should be a minimum of eight complete air changes in an hour, and the only practical method of accomplishing this at all seasons of the year is by the use of ducts and fans. Windows should close tightly (and if opened in the summer should be tightly screened to keep out flies and other insects).

Heating should be thermostatically controlled to maintain an even temperature of 75° F. in all parts of the nursery unit at all times of the year. This requirement will frequently necessitate special heating devices for the nursery. Such devices should be installed and operated as permanent equipment, under thermostatic controls, and should *not* consist of informal space heaters that require constant supervision. Every nursery room should be provided with a large thermometer, hung at the bassinet level, for checking room temperature. Minimum temperature gradients between floor and ceiling, which are important for the health and comfort of the nursing staff, will depend on proper air circulation and ventilation.

A relative humidity of 50 per cent is desirable

at all times of the year. With certain types of heating plants, it may be necessary to evaporate water in the nursery to attain this level. A wet-bulb thermometer should be provided for checking humidity.

Air conditioning (cooling) in summer is not recommended unless (1) the entire maternity unit is cooled, (2) the temperature within the nursery rises above 90° F. Newborns have greater resistance to steadily unfavorable environmental conditions than they do to sudden changes in their environmental conditions. When the maternity unit is not air conditioned, and nursery temperatures necessitate some degree of cooling, it is desirable that the gradient between the nursery temperature and maternity unit temperature not be greater than 10-15° F.

## 2. THE ANTEROOM

The anteroom to the nursery proper serves as a separation between infants and a public corridor, and therefore as a barrier to air-borne contamination. In addition, it houses a number of functions important to the nursery operation, but *not* including direct care to the infants. (All infant care should be provided in, on, or around the bassinet.)

The anteroom is the sole corridor between the nursery, or nurseries, and the rest of the hospital. Doors giving access to the nurseries and to the exterior corridor should be lightweight to reduce fatigue and glazed in some portion to reduce accidents. All doors should be fitted with spring closures and never propped open. Visitors' traffic may be diminished by the provision of pass windows so that a physician may examine a baby without entering the nursery proper.

Visitors enter the nursery through the anteroom. They should at once be confronted with a hand-washing basin with non-manual controls and storage space for an ample supply of masks and gowns. A hamper for used masks and gowns should be provided.

The anteroom will commonly be used for charts and charting. This function requires adequate storage space for charts, a flat surface that may be used for a desk top, and a chair.

Infants' formulas are usually stored in the anteroom. The refrigerator, of sufficient size to hold a 24-hour supply of formula for all infants, should be equipped with a thermometer.

Bottles and nipples must be cleaned in the anteroom before their return to the formula room. A sink of adequate size should be provided, and sufficient flat surface to make bottle washing convenient. (Hand-washing and bottle-washing should not be combined at the same sink, except in the smallest nurseries.)

Adequate storage space for general supplies and nursery equipment should be provided in built-in cabinets.

Necessary equipment will vary according to the size and the nursing procedures of the nursery. A small electric sterilizer should be provided.

### 3. FORMULA ROOM

Requirements for the formula room will vary according to the number of infants served. In even the smallest hospitals, it is desirable that it be a separate room used for no other purpose, unless formulas are prepared in the nursery anteroom.

The location is optional, in the kitchen or nursery area, depending upon whether it will be supervised by dietary or nursery personnel. Under no circumstances should it be located where there are sick patients.

Design and construction should take into account the two functions of the formula room: (1) cleaning bottles and nipples returned from the nursery, and (2) preparing formula which will go into the clean bottles and then be sterilized. The larger the hospital, the greater will be the advantage in separating these two functions and carefully planning the formula-room layout for the greatest efficiency of operation. In most hospitals, it is desirable that the apparatus for terminal heating of the formula be located in the formula room rather than in some distant area.

### 4. SUSPECT UNIT

The suspect unit is a miniature nursery unit completely separate and distinct from the main nursery unit. It permits a low threshold of suspicion in the main nursery by providing (for any baby suspected of infectious disease) alternate quarters that do not jeopardize his status on the maternity floor or prohibit his return to the main nursery if suspicions prove unfounded, or increase the cost of his care. It should never be used for the care of a baby with a diagnosed infection, as such children should immediately be removed from the maternity unit.

A suspect unit is necessary for the safe operation of any nursery whose average daily census is more than four babies, and it is highly desirable for smaller ones. When, in a small hospital, a suspect nursery has not been provided, written plans should be developed (and be understood by medical and nursing staff) for segregating suspicious infants (1) in their mothers' rooms or (2) in a private room.

The suspect unit should be located as close as possible to the main nursery. It is highly desirable that it should share a common glass wall with a nursery or a nursery workroom, as this arrangement permits a maximum of observation by regular nursery personnel. The unit should consist of an anteroom and a nursery proper. The anteroom acts as a separation

from the corridor and should contain a hand-washing basin with non-manual controls, equipment for washing and sterilizing bottles and nipples, and storage for gowns and masks. The nursery proper should contain the bassinets, in a proportion of approximately one bassinet for each 12 in the main nursery, a hand-washing basin with non-manual controls, and oxygen outlets. An allowance of approximately 40 square feet per bassinet should be made.

In other particulars, the requirements for environmental conditions and special equipment are the same for suspect units as for main nursery units.

### 5. ISOLATION UNIT

Infants for whom a definite diagnosis of contagious disease has been made should be removed permanently from the maternity unit. They may receive care in pediatric wards, special pediatric nurseries, private rooms, or (under exceptional circumstances in very small hospitals), in their mothers' rooms. Such care should be physically and functionally divorced from care in the main nursery, to the greatest extent possible.

### 6. PREMATURE NURSERY UNITS

In large hospitals the establishment of special nursery units for premature infants may offer real advantages, by focusing the attention of medical and nursing staffs on infants with special needs and by favoring desirable nurse staffing patterns. Standards for premature nursery units are the same as those given previously for the main nursery units, with the exception that capacity should not exceed six infants, and a minimum of 30 square feet per infant should be provided in the nursery proper. Obviously, a premature nursery has special needs for electrical and oxygen outlets (one each per bassinet or incubator) and equipment.

### 7. ROOMING-IN UNITS

The care of mother-and-baby as a unit in the same room is considered to offer significant psychological advantages to both patients, and, by breaking up the concentration of susceptible newborns in central nurseries, major medical advantages as well. Rooming-in care has been used successfully in the largest and the smallest hospitals, both old and new. Generally speaking, it does not require special facilities over and above those usually found. Any room that provides 80 square feet may be used for simultaneous care of mother and infant. A rooming-in unit should not have more than four beds, and in such larger facilities a hand-washing basin with non-manual controls is a necessity. In new construction, units of two two-bed rooms which share a common nursery and anteroom have proved particularly successful. It should be noted, however, that only in the smallest



hospitals will use of rooming-in obviate the need for regular central nurseries and suspect units. There will always be premature babies, babies with special medical and nursing requirements, and babies whose mothers reject the whole rooming-in principle.

#### 8. ACCESSORY ROOMS

In addition to the nursery, anterooms, and special units previously described, additional rooms may be needed, depending upon the size of the maternity service and the special requirements of the hospital program. Such accessory rooms might include: demonstration rooms for educating parents in infant care; examination and treatment rooms; chart rooms; offices for supervisory personnel. In small hospitals, many of these functions are grouped together in the nursery anteroom, and demonstrations may be given in the nursery proper in front of the observation window.

### B. Equipment

#### 1. WASHBASINS

Each nursery must have a hand-washing basin for hot and cold running water, equipped with non-manual controls and located close to the entrance of the nursery. (Elongated nurseries may require *two* such basins to minimize excessive walking by nurses.) Each washbasin should be provided with a paper towel dispenser, and it is desirable also to provide a dispenser for soap or (preferably) one of the bacteriostatic detergents.

#### 2. BASSINETS

A bassinet should be provided for each infant, preferably of the "unit" type which provides storage of the infant's individual equipment and supplies. (If non-unit bassinets are provided, each infant should have a bedside table for his supplies.)

#### 3. INCUBATORS

Each nursery must have at least one incubator for premature or full-term infants who require special environmental conditions. Nurseries serving both premature and full-term newborns should ordinarily have more than one incubator, and more than one type of incubator. Incubators should carry the seal of approval of the Underwriters Laboratory.

#### 4. RECEPTACLES

Each nursery should be provided with a covered receptacle for soiled diapers, equipped with foot controls, and with a hamper for soiled linen.

#### 5. BOTTLE WARMERS

Each nursery should be provided with a bottle warmer. Dry warmers are preferred to the water-bath type because the latter require more nursing time (for changing water, keeping water sterile, and keeping

water level so low that it does not contaminate the nipples). Basins should not be used as warmers.

#### 6. SCALES

Each unit should be provided with an accurate scales, on a table that may be moved easily from bassinet to bassinet. It is desirable that the table have a dispenser or storage for disposable tissues, as the weighing platform must be freshly covered for each baby.

#### 7. OXYGEN EQUIPMENT

a. Oxygen outlets. An oxygen manifold system which permits oxygen to be piped into the nursery from outside storage conserves the time of nursery personnel and reduces traffic through the nursery. An allowance of one outlet for each four bassinets is desirable, and the outlets should be so located that infants receiving oxygen will also be receiving a maximum of supervision from the nursery staff.

b. Oxygen analyzer. An oxygen analyzer is an indispensable adjunct to oxygen therapy and should be provided in every nursery unit. The accuracy of the apparatus should be checked at frequent intervals with recalibration obtained when necessary.

#### 8. NON-RECOMMENDED EQUIPMENT

a. Common bathing, carrying cart and dressing tables run counter to the whole theory of individual care and should not be permitted in the nursery in any form.

b. Curtains, drapes, and venetian blinds are hard-to-clean dust catchers. On corridor windows they interfere with supervision of the nursery and isolate nursery personnel from the rest of the hospital. Excessive sunlight may properly be controlled with exterior devices.

c. Cubicle or other partitions within the nursery interfere with nursing care and do not significantly reduce cross-contamination. They should not be installed in new nurseries; when they are present in old ones, they should be removed.

d. Ultra-violet lamps are not effective in controlling cross-infection unless used in great numbers. When so used, nursery personnel must wear protective devices, and the ozone generated will irritate the infants' respiratory epithelium. Such lamps should not be installed in new nurseries; when they are present in old ones they should be removed.

### III. Administration of Services to the Newborn

The nursery is a sensitive area in any hospital. It carries its patients over the critical first days of life and therefore contributes a number of deaths to the hospital total. There is always a risk of epidemic dis-

case, attended by unnecessary infant deaths, financial loss, and damage to the hospital's prestige. The risks, the morbidity, the deaths, can all be held to a minimum by provision of a high standard of care. A high standard of care will require careful planning and organization of the service.

### **A. The Hospital Administrator**

The administrator should be aware of the importance of the nursery and the necessity of maintaining adequate standards there. He should have a good understanding of the nursery operation, through attendance at staff meetings and conferences with the nursery personnel. He can, through his position, stimulate and encourage staff organization, the formulation of policies and routines, and the development of self-imposed rules and regulations. He is responsible for personnel policies that contribute to a safe operation: health examinations for all nursery personnel and, in case of illness, standard procedures that do not penalize the worker who reports sick. As the chief financial officer of the hospital, he must provide adequate funds for maintenance, for purchase of necessary equipment, and for education and training of nursery personnel.

### **B. The Medical Staff**

The medical staff is responsible for the level of medical care on the newborn service. Everyone's responsibility is frequently nobody's responsibility, however, and it is essential that the medical staff appoint (1) a committee of physicians to concern itself with the affairs of the nursery, and (2) a single physician to act as the "physician-in-charge," a person with special interest, and of possible special competence, in the care of full-term and premature infants.

The Nursery Committee and the designated physician should:

1. Arrange for a formal visit to the nursery at least three times weekly to review the status of the babies, to confer with nursery personnel, and to determine the adequacy of nursing procedures and routines.
2. Establish a system of calls that will assure the immediate availability of a physician in case of emergencies.
3. Take responsibility for the enforcement of these orders and policies which are concerned with the welfare of all babies in the nursery, especially those which have to do with the management of individual and group infections.
4. Oversee the keeping of proper records, especially records of admission, interim, and discharge examinations.
5. Report to the staff at regular intervals on the operation of the nursery, problems of infant morbidity

and mortality, recommendations for initiation or change of policies, and similar matters.

To carry out these and other duties, the committee and the designated physician must be given sufficient authority by the hospital administration and by their colleagues on the medical staff. This should include authority to act quickly, and, if necessary, drastically, in case of an outbreak of epidemic disease.

### **C. The Nursing Staff**

The nursing staff is responsible for hour-by-hour care of newborns. Maintaining an adequate level of nursing care always requires careful and continuous planning, which should include:

1. Simplification of all nursing procedures so that they can be carried out with a minimum of time and energy.
2. Making maximum use of special skills, education, and experience, and conversely limiting the responsibilities of untrained persons.
3. *Always* placing the supervision of the nursery under a registered professional nurse with special training and experience in the care of full-term and premature infants, for each eight-hour period of the 24-hour day. (The importance of special experience and training is such that if a hospital is unable to find such nurses, it should make arrangements for advanced training for members of its permanent nursing staff.)
4. Provision of an adequate number of nursery workers on all shifts, never fewer than the accepted minimum of one nurse or auxiliary worker to each 12 infants.
5. Recognition that the ideal nursery staff would consist entirely of registered professional nurses. Those of less-than-professional competence should always work under the direct, immediate, and frequent supervision of a professional nurse (and such workers, including student nurses, should not be assigned to the nursery without prior orientation).
6. Adherence to the principle that all newborns should be under close observation at all times. When this requirement gives rise to great difficulties, as sometimes occurs in small hospitals, it should lead to serious consideration of rooming-in techniques.

## **IV. Care of Infant Prior to Labor and Delivery**

The quality of newborn babies is variable. Some arrive healthy, vigorous, and capable of withstanding the stresses of a difficult delivery. Others appear to be made of less satisfactory material, and are killed or permanently damaged by slight degrees of trauma or insignificant infections. The factors that determine the matter of quality are often within the physician's

control. The baby whose mother has received adequate, careful medical supervision through her pregnancy has a statistically better chance of being a "good" baby than one whose mother has not.

### A. Prenatal Care

*Minimum Standards of Obstetrical Care*, available from the Kansas Medical Society or the Kansas State Board of Health, summarizes what is expected from the physician in the area of prenatal care. A number of items mentioned have particular significance for this person, the unborn baby.

#### 1. DIETARY INSTRUCTION

"In recent years, many studies have indicated that the prenatal diet affects fetal growth and development as well as the course of pregnancy, labor, delivery and the post-partum period. There is conclusive evidence that the incidence of prematurity, stillbirths, toxemia and congenital defects is markedly higher among infants born to mothers whose diets are inadequate than among those of well-nourished women."

#### 2. RH TYPING

"The chief value of the Rh determination lies in its warning of possible complications in some cases, albeit a small number. The physician who is confronted with an erythroblastotic baby without being warned by available laboratory procedures, has not performed his full duty to the patient." Incompatibilities to the major blood groups (AOB) which may produce neonatal jaundice should be kept in mind.

#### 3. SEROLOGICAL TESTING

"The significance of the serological test is obvious." (A recent upward trend in incidence of congenital syphilis is thought to be due to infection or reinfection of the mother after a negative serological test in early pregnancy. In selected cases, repeating the serological test in the middle of the third trimester is recommended.)

#### 4. PREPARATION FOR BREAST FEEDING

"Part of the patient's orientation to pregnancy and motherhood should be an enumeration of the advantages of breast feeding." It is generally agreed that the success or failure of breast-feeding among the many "undecided" mothers depends primarily on this prenatal orientation.

### B. Prenatal Instruction

The quality of a baby is influenced favorably when his mother understands the meaning of good health during pregnancy, and accepts the fact that good health will promote her child's welfare. Understanding and acceptance are directly related to the amount

of time the physician will spend in informing, explaining, and counseling. A great amount of time is required so that in recent years the establishment of "classes" for expectant mothers has become an accepted procedure. In class or in the physician's office, instruction and discussion should be arranged around the following:

1. The physiology of reproduction.
2. An explanation of the process of labor and delivery.
3. Reasons underlying the prevailing system of prenatal care.
4. Special dietary requirements of pregnancy.
5. The "hygiene of pregnancy"—including emotional hygiene.
6. Care of young infants.
7. Breast feeding.
8. Medical supervision of the well baby. (A discussion of formula preparation is *not* recommended during the prenatal period, as such would tacitly assume either that the patient was so unmotherly as not to want to nurse her baby or so biologically inadequate that she could not.)

### V. Care of the Infant in the Delivery Suite

No delivery is so normal that its outcome is a certainty. The physician in attendance in the delivery suite has the total responsibility, both to the mother and infant.

#### A. Anesthetics and Sedatives

A plea is made here for the limited use of these drugs, as, used in excess, they are injurious to the newborn and may cause delay in breathing and sometimes death. Especially in the case of the premature, labor should be conducted with little or (preferably) no analgesia.

#### B. Conduct of Delivery

Only the highest degree of obstetrical management and skill should be acceptable. The physician in attendance must assume responsibility for unusual trauma to the infant.

#### C. Resuscitation

Almost all problems of resuscitation can be prevented with minimal use of sedatives and anesthetics. A physician need not be an expert at resuscitation if he does not care for drugged infants! The following principles are important:

1. Clear airway must be maintained by use of a suction bulb or a mechanical suction device. This aspiration of the pharynx must be gentle. In the severely drugged infant, the semi-rigid catheter may be needed for aspiration of the trachea—this should be employed only by those skilled in its use!



2. Oxygen, 100 per cent, should be available, and an infant mask with reservoir bag and spring-loaded escape valve also. CO<sub>2</sub> mixtures should not be used in resuscitation.

3. Mechanical resuscitators are not recommended.

4. Stimulants are usually of little value as the anoxic respiratory center is refractory to them. The convulsant type drugs (Coramine and Metrazol) do not have any place in resuscitation. The following may be of some value:

a. Caffeine and sodium benzoate (intravenously or intramuscularly) 3-4 mg. per pound.

b. Epinephrine (subcutaneously, intramuscularly, or intravenously) 0.06 to 0.3 cc. (1-5 minims).

5. Nalline-N-allyl Normorphine (subcutaneously, intramuscularly, or intravenously). One should seldom find use for this drug! It is a specific for those in whom morphine or Demerol have been used in excess; it is of no value as an antagonist for other sedative type drugs. Doses are as follows: 0.2 mg., preferably into umbilical vein. It may be repeated at frequent intervals.

6. The infant laryngoscope and bronchoscope have a place only in the hands of skilled personnel.

#### **D. Appraisal of Physical Status**

A rapid appraisal which concerns itself with color, breathing difficulties, and gross defects should be carried out at the time of birth. This appraisal does not substitute for the complete physical examination which should be done within the first 24 hours when the infant's condition has stabilized.

#### **E. Routine Care in the Delivery Room**

1. Temperature—a heated bed or incubator (turned on) should be available to maintain the infant's temperature.

2. The bed or incubator should be constructed to allow for tilting for proper drainage from the nasopharynx.

3. Umbilical cord—this should be clamped or tied (under sterile technique). Bands and binders are not desirable.

4. Eyes—the eyes of the newborn should be protected with a 1 per cent solution of silver nitrate in wax ampules, taken from a dated box. Care should be taken that the silver nitrate is later washed out with isotonic saline solution. This cannot be adequately done with a dropperful of saline.

5. Identification—before infant or mother leave the delivery room, adequate identification should be attached.

#### **F. Unusual Deliveries**

Infants who are the products of unusual deliveries—i.e., prematures, may require care and attention not

given above, i.e., incubators, etc. One is referred to other sections of this manual or to the standard texts for data on the management of such babies. A second physician may be helpful to care for these infants at the time of delivery.

#### **G. Transfer to Nursery**

1. This should be accomplished by a route as free of contacts as possible.

2. A movable heated bed and oxygen supply should be available if needed.

3. Records must be sent with the infant.

4. Transfer (to nursery or mother's room) should be carried out only when the condition of the baby and/or the mother permits.

#### **VI. Infant Care in the Nursery**

After the baby has been received in the nursery from the delivery room, there should be a minimum of handling and constant awareness of individual technique. This has been emphasized previously in this manual. He should be treated as if he is potentially a dangerous source of infection. Many epidemics have their origin in "clean nurseries."

The baby's bassinet and equipment constitute individual isolation units, so isolation technique should be carried out. The hands should be washed before and after handling each infant. All infant care should be given at the baby's bassinet. There should be no common equipment such as dressing tables, with the exception of a common scale which should be covered. No common carriers are allowed.

Exclusion of nursery personnel with infections (colds, skin diseases, diarrhea, etc.) should be mandatory.

Daily inspection of each infant for signs of illness (skin rash or infection, cyanosis, jaundice, thrush, sore buttocks, etc.) is necessary.

*Hand Washing.* Hands should be washed before and after the care of each baby. This includes hands, wrists, and exposed arms, washing to the elbow, especially when using porthole type incubators. One should wash all areas of the hand, including the area between the fingers. Hands should then be rinsed completely and dried with paper towels which are discarded. Detergents containing hexachlorophene should be used.

*Gowns* should be worn by all persons in the nursery. Short-sleeved gowns are worn by nursery personnel, permitting washing to the elbows. Physicians entering to examine a single baby should wear long-sleeved gowns. An effort should be made to avoid contamination of the gowns. Caps are optional. A clean gown must be worn by any person entering the suspect nursery and discarded before leaving that unit.

*Masks* may give a false sense of security and therefore are not recommended for individuals such as nurses and nurses aides working in the nursery. Individuals whose duties require only an occasional visit, such as physicians, laboratory technicians, and floor personnel, should wear masks in the nursery.

#### **A. Care of the Normal Infant**

The most precarious hours of infancy are those immediately after birth. The newborn infant must be under constant observation. The bassinet of the new admission to the nursery should be placed in a position which can be conveniently watched. Signs of illness should be quickly observed and reported to the physician.

The following portion of these standards shall deal with the individual bedside care of the newborn infant.

##### **1. CARE OF THE SKIN**

Care of the skin of the newborn infant is primarily given to prevent infection. The more one traumatizes the skin in washing, rubbing, and scrubbing, the more likelihood of infection. The present consensus is that the less done to the skin, the less danger of infection.

a. Cleansing. Vernix caseosa is a natural protective coating and should be left on the newborn skin. Excess vernix and blood may be removed with warm water and cotton for esthetic reasons. No surgical gauze should be used. Soap and water baths are not recommended during the baby's hospital stay.

b. Care of the buttocks. The buttocks area may be satisfactorily cleaned with water. Oil may be used in the diaper area only. If used, oil should be kept in a sterile glass container at the bedside of each infant.

c. Care of the cord. The cord and umbilical area should be carefully kept clean. No dressings should be used.

##### **2. TEMPERATURES**

Separate thermometers should be kept at each baby's bedside. Temperature should be taken on admission and at least every four hours until it is stabilized. Subsequently it may be taken once daily. It is felt that axillary temperatures are sufficiently dependable for use in the newborn. Axillary temperatures should not vary more than 2 degrees a day, but this stabilization may be at any level between 94 to 99 degrees.

##### **3. CLOTHING**

Each newborn should wear one piece of cotton clothing besides the diaper, and this should consist of a gown which opens easily with ties or opens in the back.

##### **4. WEIGHING**

Infants should be weighed on a scale mounted on a portable table. The weighing should be accomplished at the infant's bedside in a manner which will preserve body heat and avoid chilling. Each scale pan should be freshly and completely covered for each infant. Weight should be taken at birth, or as soon after birth as possible, at four days, and upon discharge from the nursery, unless otherwise ordered. In the event of death of the infant, the infant should be weighed before being taken from the nursery.

##### **5. TRANSPORTATION**

Babies should be carried to the mother individually by the nursing staff. Care should be taken by the nurse not to contaminate herself on the mother's bed clothing or articles in the mother's room.

##### **6. FEEDING**

There are two acceptable methods for feeding of the baby, by breast and artificially. Breast feeding is more desirable. The process of feeding the baby on the breast solidifies good mother-child relationships. Formulas, at best, are less than satisfactory substitutes for breast feeding.

a. Breast feeding is a healthful and enjoyable experience for both mother and baby.

1. General considerations. Prenatal and hospital instruction in breast feeding techniques is essential. Demand feeding is recommended for the feeding of breast babies in the hospital. Breast feeding should be started as soon as possible following delivery. Only water or sugar water is used as a complementary feeding to the breast fed baby. It cannot be determined whether the mother's milk supply will be adequate during her hospital stay. It is suggested that one wait several weeks with a baby on breast before absolutely determining the adequacy of any nursing breast. The attitude of the mother always guides her physician in choosing breast feeding or artificial feeding, but her feelings can be diplomatically altered by a few choice words from her physician.

2. Techniques. Inexperienced mothers will need to be instructed in the techniques of breast feeding by an experienced and sympathetic physician and nurse. It is most important that the mother and the baby be comfortable during breast feeding. An empty breast is the best stimulus to the production of more breast milk. Therefore, manual expression of the breast should be taught before the mother leaves the hospital.

3. Care of the breast. Soft, absorbable breast coverings should be used between breast feedings to absorb excess milk. These coverings should be sterile. Caked milk may be removed with

sterile cotton and water. Antiseptic solutions should not be used on the breast. No routine medications or ointments are necessary in the care of the normal nipple. Boric acid is dangerous and should not be kept in the nursery for any purpose, and particularly not for washing breasts. Hand washing of the mother before receiving a baby for feeding is essential. The breast should be washed with warm water once daily.

4. Collection of breast milk. Breast milk may be expressed by the mother if for any reason the child cannot nurse and the mother wishes to maintain her milk supply. The manual method of expression of the breast milk is to be preferred; however, hand pumps and electrical breast pumps are available.

Collected breast milk should be sterilized.

b. Artificial feeding. It is important that all bottle-fed babies should be taken to the mother's bedside and fed by them. Here again it is unnecessary to adhere to a strict schedule. Propping of bottles should never be permitted.

1. Milk mixtures. The physicians should write orders for milk mixtures and any changes in them. One or two stock formulas should be agreed upon by the medical staff, and special milk mixtures should be ordered only for a good cause.

2. Formula preparation. The layout of the formula room has been previously discussed. All milk mixtures and sterile water should be prepared in the formula room.

a. One individual nurse or dietitian should be assigned as supervisor of the formula room. She should preferably have training in formula preparation and sterilization procedures.

b. Used bottles, caps, and nipples should be cleaned in the nursery before being returned to the formula room. (Bottles, caps, and nipples from suspect nurseries, or from the pediatric nursery, should be washed thoroughly and boiled before being taken to the formula room.)

c. In the clean-up section of the formula room, again the bottles, caps, and nipples must be thoroughly washed with a detergent. A brush must be used to clean the inside of the bottles. Nipples should be inverted. Nipples must be boiled five minutes.

d. In another section of the formula room, the milk mixtures are prepared, using clean but not aseptic technique. The two sections, that is the clean-up and the preparation sections, should be separate and apart from each

other. The bottles, nipples, and caps are filled with milk, then placed on metal racks where terminal sterilization is done. The bottle caps should not form a tight seal around the shoulder of the bottle or nipple.

e. Sterilization of the formula is accomplished by terminally heating, either at pressure at 230 degrees F. for ten minutes or by the non-pressure method of steam or water, at 212 degrees F. for 25 minutes.

f. The formulas are cooled at room temperature for one hour and then placed in a refrigerator maintained at 40 to 45 degrees F.

3. Delivery of milk mixtures. The 24-hour supply of milk mixtures should be brought to the nursery from the formula room.

4. Storage of milk mixtures. Milk mixtures should be stored in a refrigerator used only for this purpose with a thermometer regulating a controlled temperature of 40 to 45 degrees.

5. Warming of milk mixtures. Care should be taken not to contaminate the nipples by filling the water up too high. No bottles should be warmed in the laboratory basin.

6. The formula is inspected at periodic intervals by bacteriological survey. It is preferable to have bacteria counts on random samples of milk, not to exceed 25 organisms per cc.

7. Drinking water. It is recommended that plain sterilized tap water, kept at room temperature, be offered once or twice daily, if necessary, to irritable babies. The handling of sterile water is similar to that of milk, as described above.

8. Feeding records are kept of the infant's diet as to the amount taken and the method of feeding.

#### 7. SUPPLIES

The nurse in charge of the nursery should daily check equipment and supplies to insure proper working of the mechanical equipment and see that adequate amounts of supplies are present for the 24-hour period.

The following items are necessary at the infant's bedside or nearby:

1. Bulb syringe or suction device.
2. A supply of oxygen and apparatus for immediate administration.
3. An incubator.
4. Sufficient clean linen delivered to the nursery for at least one eight-hour shift. No unlaundered garments should be used. Garments marked with aniline dyes should be laundered before being used in the nursery.

#### 8. CLEANING THE NURSERY UNIT

No dry dusting or cleaning should be allowed in the nursery unit. Furniture, equipment, walls and



floors should be washed or wet mopped by house-cleaning personnel, not nurses. This personnel should wear gowns and masks while cleaning. The daily cleaning should be timed so as to coincide with nursing periods when most of the infants are out of the nursery.

#### 9. CARE OF SOILED LINENS

Soiled diapers should be placed in a special diaper can. This should be separate from the hamper used for soiled clothing and bed linen. Diapers should never be rinsed by nursery personnel or in the nursery proper.

The soiled linen should be collected twice daily, at least. The linen hamper and diaper can should be placed outside the nursery for collection. Diapers and soiled linens should be taken to the laundry before being removed from their respective bags.

Diapers and soiled linens should be washed separately from other hospital linens. Garments should be kept soft and free from irritating substances such as strong soap or chemicals. Rules for laundering, such as sterilization, preferably by autoclave, and delivery to the nursery are matters of hospital policy; however, one is referred to the *Manual of Operations*, published by the American Hospital Association, 18 East Division Street, Chicago 10, Illinois.

### **B. Care of the Premature Infant**

A premature infant is any infant born alive with a birth weight of  $5\frac{1}{2}$  pounds (2,500 grams) or less. These infants have certain characteristics which put them aside from the normal infant. These special characteristics will be stressed, and specific recommendations are made to circumvent these inherent deficiencies.

#### 1. EXAMINATIONS

The private physician who is responsible for care of the premature infant should see the infant immediately upon admission. A detailed examination should be performed and recorded, preferably in the incubator, by the end of the first 24 hours.

The nursery supervisor should focus close, immediate attention upon all new premature infants.

Early treatments, weighing, and handling should be kept at a minimum in an effort to avoid undue fatigue and exposure.

#### 2. CLOTHING

It is recommended that only a diaper be worn by premature infants to facilitate close observation.

#### 3. INCUBATORS

There are two general types of incubators: (1) the circulating type, in which there is forced air circulation inside the incubator, and (2) the convection

type in which the air is circulated by convection currents, the heating unit being open at one end of the incubator.

Each small infant and many larger infants will require incubator care.

Incubator temperatures should be kept from a high of 94 degrees for a small infant to 85 degrees for larger infants. The incubator temperature should be kept steady or constant.

The relative humidity should be kept at 65 per cent at least, preferably 100 per cent for infants under 1,800 grams and for infants in more than 40 per cent oxygen.

As the infant grows and his temperature becomes stabilized, the temperature and humidity of the incubator may be gradually changed towards 85 degrees and room temperature. As these conditions are met, the infant may be dressed and removed to an unheated crib.

In view of the prevalence of staphylococcal infections in hospitals, it is recommended that the air intake and outflow of circulating incubators be connected directly to outside air. This practice serves to isolate this infant from the nursery.

#### 4. TURNING

Most small infants, whether they be in an incubator or not, should be placed on the abdomen and turned from side to side at frequent intervals. This enhances removal of the amniotic fluid and mucus from the upper respiratory passages. The nose and throat may be suctioned gently with a soft rubber bulb as often as fluid seems to collect.

#### 5. WEIGHING

Premature infants should be weighed as soon after birth as their condition permits. However, this may be postponed if the infant's condition is precarious. In event of the death of the infant, he should be weighed before leaving the nursery. Infants need be weighed only every four to five days.

#### 6. TRANSPORTATION OF PREMATURES

Many premature infants  $4\frac{1}{2}$  pounds and over may be transmitted to their mothers for breast feeding if particular care is exercised in the process. Premature infants may be transferred to x-ray, in incubators with movable oxygen, for diagnostic studies.

#### 7. FEEDING

Breast feeding may be utilized in older premature infants, as indicated above. However, in many instances it may be advisable to express the breast milk manually and, after sterilization, feed it to the baby with a nipple, until the time arrives when the child is vigorous enough to nurse at the breast.

a. When to begin feeding. Opinion varies as to

the proper time for the first feeding. However, there is a tendency to postpone the beginning of feeding of premature infants. This is due to the high death rate in the first 24 hours and to the fact that few premature infants have been demonstrated to die of starvation or dehydration, despite the fact that 70 per cent of them die within the first 48 hours. The feeding of smaller moribund infants may be delayed as long as four days. If the infant's condition is serious, each feeding induces extra hazards of vomiting and aspiration. Therefore postponed institution of the first feeding to at least 24 hours in prematures is advisable. The first feeding should consist of sterile water or glucose solutions.

#### b. Method of feeding.

1. Gavage feedings should be given only by a nurse who is trained and experienced in its use. Many prefer the utilization of a polyethylene catheter of 0.05 mg. internal diameter, inserted through the nose and into the upper stomach by the physician and left there for three to seven days for feeding by glass syringe.

2. However, a small soft nipple may be used, and it is the safest of all methods of feeding.

3. Breck feeders, which force the feeding into the baby's mouth, are dangerous and should not be used.

4. On occasion, cup feeding may be advantageous.

c. Feeding techniques. The infant should be supported or held in a semi-reclining position during each feeding period, and the bottle must always be held, never propped. Infants receiving oxygen must be fed in the incubator. No bottle feeding should be prolonged longer than 20 minutes.

d. Milk mixtures. In general, the type of food does not determine whether the premature infant will survive, but it does determine to some extent the rate and composition of his growth. Long pediatric experience and laboratory studies show that easy digestion, satisfactory growth, and reduction of the excretory load occur with the relatively low electrolyte and nitrogen content of human milk. Cow's milk mixtures have high retention of nitrogen, calcium, phosphorus, and presumably other electrolytes and may increase growth per calories fed but induce a larger renal load.

e. Vitamin mixtures. It is recommended that 800 units of Vitamin D, 4,000 units of Vitamin A, and 40 mg. of Vitamin C be supplemented to all premature infants at about one week of age. These vitamin mixtures may be sterilized by the terminal method after being added to the milk. The use of

iron is of little demonstrated value before six weeks of age.

f. Caloric requirements. The amount of food required will vary, depending upon the age, weight, and condition of the infant. In general more mistakes are made by feeding too much too often rather than by too little too late. Excessively large feedings may lead to aspiration. It is recommended that feedings be 40 calories per pound (or 80 calories per kilogram) per day by the end of the first week, and 60 calories per pound (125 per kilo) by the end of the second week. Fluid requirements after the first week will be satisfied with approximately 120 to 140 cc. per kilogram for each 24 hours, after the first few days of life.

g. Frequency of feedings. To avoid over-distention, the interval between feedings should usually be shortened in smaller infants. Infants under the weight of two pounds, or 1,000 grams, may be fed every two hours; those under three pounds, or 1,350 grams, may be fed every three hours; those of about four pounds (or above 1,800 grams) may be fed every four hours.

#### 8. TREATMENT OF PREMATURE INFANTS

It is not the purpose of this document to discuss the treatment of illness. However, there are some special considerations for the premature infant that fall under this treatment heading.

a. Oxygen is a drug and should not be used routinely for prematures. Some premature infants require an atmosphere of oxygen concentration at 40 per cent, as determined by direct oxygen analysis. Concentrations even in the 25 to 30 per cent range should be used no longer than absolutely necessary.

Direct analysis should be done every four hours, or more frequently. Orders for oxygen should be given in percentage and not in liters, per minute. When the infant is to be removed from oxygen, there is probably no advantage in removing him gradually. Oxygen concentrations above 40 per cent should be used only in emergency and should be accompanied by 100 per cent humidity if possible.

b. Vitamin K should be given to all premature infants, although its value is open to question. Dosage is limited to 1 mg. Large doses produce kernicterus.

c. Respiratory stimulants. There is little justification for the use of respiratory stimulants such as alpha-lobaline, Coramine, or Metrazol. In rare instances weak premature infants may benefit from a general stimulant such as caffeine and sodium benzoate, in single dose, or repeated doses of 3 mgs., or 1/20th gr. per pound of body weight in-

tramuscularly. Physical stimulus is superior to medicinal stimulus.

d. Transfusions. It is physiological for the premature infant to have a low blood count after several weeks of life. However, if the hemoglobin falls below 7 or 8 gms., one should consider transfusion. Transfusion may give a general non-specific boost to the infant's well-being in addition to the effect of a rise in blood count.

#### 9. GOING HOME INSTRUCTIONS

No premature infant should be discharged until he has demonstrated an ability to thrive under conditions existing at home. On the average, discharge weight is 5½ pounds (or 2½ kilograms). The condition of the individual infant, the maternal ability, the breast milk supply, etc., may permit an earlier or dictate a later discharge.

The local public health nursing agency or a visiting nurse may be of great value in determining the time of discharge and preparing the mother for reception of her growing premature infant. She should be available to demonstrate to the mother the actual care of the infant in the home, as directed by the infant's physician. She may make repeated visits, depending upon the circumstances in each case. The parents should receive instructions in the hospital regarding the care of the infant, by demonstration and by participation, according to the policies of each particular hospital medical staff.

It is essential that the premature infant receive regular medical supervision throughout the first year of life. Visits to the physician should be made at monthly intervals during this first year and the plan should include an ophthalmological examination for the smaller infant.

### C. *The Infant with Infection*

The regular nursery is designed and equipped for the care of normal non-infected babies. Procedures for the removal of potentially infected babies or the admission of potentially infected babies should be formulated, as recommended in the following discussion.

#### 1. SUSPECT NURSERY

A separate unit or nursery, previously described in this publication, should be provided for those infants suspected of having or developing an infectious condition. Babies who are put into the suspect nursery fall into the following categories:

a. Infants suspected of having an infectious condition such as those who have developed loose stools, fever, mouth or skin lesions.

b. Infants born outside the hospital. These infants may be kept in the suspect nursery; if no ill-

ness is noted within 48 hours, the baby may be transferred to the regular nursery.

c. Infants of mothers who are ill with diarrhea, who are delivered while having diarrhea or respiratory infections, or who develop infectious diseases while in the hospital.

d. Infants having been subjected to ritual circumcision.

The babies mentioned above may be roomed-in with their mothers or transferred to the pediatric ward as an equal alternative to the operation of a suspect nursery in a small hospital, depending upon hospital policies.

The nurse on duty should be authorized to transfer babies to suspect nursery pending a decision concerning the infectiousness of the infant by the staff physician in charge of the infant's care.

Nursery personnel may be designated to care for these infants in the separate nursery but must rigidly adhere to isolation technique. Gowns and masks and hand washing should be performed upon entering and upon leaving the suspect unit.

#### 2. ISOLATION

Procedures for isolation should be provided for newborn infants in whom a definite diagnosis of infection has been made. After a diagnosis of infection has been made, these infants must be transferred to another section of the hospital, either to the pediatric ward or to a private room. (Infants who have been isolated should never be returned to the regular nursery.)

An epidemic may be defined as three or more cases of the same disease occurring in a nursery within a two-week period. Epidemic diseases which occur most frequently in the newborn unit are diarrheal diseases, skin infections, mouth infections, and respiratory infections. By far the most serious of these are diarrhea and infections caused by the 80-81 strain of staphylococcus by phage typing. Reporting of this disease to the Kansas State Board of Health is mandatory.

Prevention of epidemics depends upon careful attention to techniques of infant care. The occurrence of an epidemic is almost certain evidence of a break in technique. Such an epidemic calls for immediate and drastic action by all persons concerned.

If two or more cases of any infectious disease, even a mild one, occur simultaneously in the nursery, this is a warning signal of a serious break in technique and should be promptly reported to the Nursery Committee of the hospital staff and the Committee of Hospital Infections. The following basic principles should be immediately put into effect:

a. Immediate transfer of infected infants for treatment to an appropriate isolation unit outside the maternity service.



b. Closing of the infected nursery to new admissions until all current patients have been discharged.

c. Establishment of a clean nursery with separate personnel for new admissions.

d. Thorough investigation of the source of the infection. This includes personnel, patients, formula room, nursery technique, laundry, sterilizing equipment, plumbing, etc.

e. Elimination of the source of infection and establishment of appropriate measures to prevent occurrences.

f. A thorough cleaning of the infected nursery before opening it to new patients.

g. Examination of babies recently discharged from the nursery.

## VII. Education of Parents

Adequate education of both parents is important for full physical and emotional growth of babies. A comfortable, happy, healthy infant is the product of healthy, emotionally stable parents.

### A. Prenatal Education

Obviously this education must begin early in the pregnancy with interviews with the attending physician who will recommend reading material and prenatal classes if such are available. (See previous section on Prenatal Care.)

### B. Education in the Hospital

Lying-in mothers are a captive audience who are eager for any information about babies. The physician or the medical staff and the hospital staff have joint responsibility for this phase of parent education. Much of this education will automatically be accomplished if rooming-in is carried out. Much of the following information will depend on the ideas of the individual physician but should be included in the education while in the hospital:

#### 1. FEEDING

Whether feeding is to be accomplished by breast or by artificial means, it is recommended that a demand routine be followed. One should caution against too frequent feedings, however, and rarely should the interval be less than two hours.

a. Breast. The mother should be informed as to the value of such feeding, should be shown the technique of feeding the infant at breast, and the art of manual expression of milk. She should be schooled in the essentials of the diet and fluid needs for the breast feeding mother.

b. Artificial. Mothers should be shown the proper method of terminal sterilization of formula. Techniques of feeding and holding the infant should be demonstrated.

#### 2. SKIN CARE

Mothers should be adequately informed on this matter, and this should include demonstrations of the bath and care of the skin.

#### 3. CLOTHING

The type of clothing, loose fitting and of light weight cotton with ties, should be discussed and might be demonstrated. The diaper, its care and actual pinning on the infant, should be shown. Many mothers are anxious to know about recommended laundry methods for care of clothing.

#### 4. BOWEL HABITS

The infant's elimination is a constant source of worry to the new mother. Much needless anxiety can quickly and easily be removed with a few well chosen comments.

#### 5. DISCHARGE EXAMINATION

It is recommended that this be carried out in the mother's room as this may provoke many questions and relieve much parental anxiety. It would also be wise, if possible, to place the infant in the mother's room for a period of six to eight hours before discharge.

#### 6. THE HANDICAPPED INFANT

A handicapped baby will require much more help from parents, physician, and hospital staff. Such parents must be supported adequately and should be referred and reported to public agencies that deal with the handicapped.

### C. Education after Discharge

Follow-up care in the state of Kansas in most instances will be that of the attending physician. In selected cases (first babies and those requiring special care), further education and help may be available, in certain areas, by referral to the Public Health Nursing Service. In such instances the public health nurse will act under the attending physician and expect to receive instructions from him.

## VIII. Records and Statistics

Some orderly system of information concerning each infant is necessary, and this is the responsibility of the attending physician and nursing staff. Just as important as the record itself are the analysis and comparison of data from such.

### A. Necessary Records

#### 1. PHYSICIANS' RECORDS

Physicians' records should consist of the following:

a. Mother's history. A brief résumé of the family history, the mother's pregnancy, serological test for syphilis, Rh status, analgesia, anesthesia, length of labor, and type of delivery should accompany the newborn infant's record. A report of the mother's chest x-ray is desirable.

## b. The infant's record should include:

1. Physical examination and medical evaluation soon after birth.
2. Progress notes as indicated to record and evaluate the course.
3. Complete physical examination prior to discharge.
4. Final diagnosis according to the *Standard Nomenclature of Diseases and Operations*.

## 2. NURSES' RECORDS

The nurses' record should show the following:

- a. Immediate reactions after birth and delivery room care.
- b. Temperature.
- c. Weight.
- d. Time of first urination.
- e. Number, character, and consistency of stools.
- f. Feeding, breast or artificial, amount taken, and reactions to feeding.
- g. Unusual signs or symptoms.

**B. Record Forms**

Many types of records are available; one is referred to the American Academy of Pediatrics publication, *Hospital Care of Newborn Infants*, for samples of such records.

**C. Statistical Analysis**

The responsibility of the medical and hospital staffs does not cease with the keeping of adequate records. Data concerning infant morbidity and mortality must be compiled, and this must be presented to the staff regularly for criticism and evaluation of the work done.

## 1. MORTALITY DATA

Mortality data should be collected in the two groups as listed below:

a. Perinatal mortality. Defined as including all deaths from stillborns beyond 20 weeks gestation and liveborn who expire within the first seven days of life.

b. Mortality according to birth weight groups as follows:\*

Metric	English
500 gm. or less	1 lb. 1 oz. or less
501 gm. to 1000 gm.	1 lb. 2 oz. to 2 lb. 3 oz.
1001 gm. to 1500 gm.	2 lb. 4 oz. to 3 lb. 4 oz.
1501 gm. to 2000 gm.	3 lb. 5 oz. to 4 lb. 6 oz.
2001 gm. to 2500 gm.	4 lb. 7 oz. to 5 lb. 8 oz.
2501 gm. to 3000 gm.	5 lb. 9 oz. to 6 lb. 9 oz.
3001 gm. to 3500 gm.	6 lb. 10 oz. to 7 lb. 11 oz.
3501 gm. to 4000 gm.	7 lb. 12 oz. to 8 lb. 13 oz.
4001 gm. to 4500 gm.	8 lb. 14 oz. to 9 lb. 14 oz.
4501 gm. to 5000 gm.	9 lb. 15 oz. to 11 lb. 0 oz.

## 2. COMPILATION OF DATA

When the data is available it should be presented to the medical and hospital staffs with the following points in mind:

a. Comparison of statistics with those available—i.e., those from the hospital from previous such studies; those from other hospitals; those which are available from state and national studies.

b. Presentation and frank criticism of problem cases with recognition of inadequacies in medical management, nursing care, and hospital facilities.

c. Immediate correction of any deficiencies which become obvious through the above analysis and presentation.

\* Recommendations for Developing Comparable Statistics on Prematurely Born Infants and Neonatal Mortality (Joint Statement of Public Health Conference on Records and Statistics, Association of Maternal and Child Health and Crippled Children Directors, Children's Bureau, National Office of Vital Statistics—Dec. 1950).

The miracles of modern science are not created by one brain and one pair of hands. We need broad financial support, teamwork and the spirit of friendly competition. We need the spirit of World War II. . . . The present emergency is even greater. The response must be greater if freedom is to survive.

—Edward Teller

# Care of the Newborn

## *Definitions, Laws, and Regulations in Kansas*

### **I. Definitions**

#### **A. Live Birth**

Live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born." (International Classification of Diseases, 1955 Revision, World Health Organization.)

#### **B. Foetal Death (Stillbirth)**

"Foetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles." (International Classification of Diseases, 1955 Revision, World Health Organization.) (At present, the Kansas law defines stillbirth as follows: "Stillbirth means a birth after 20 weeks gestation, which is not a live birth." A revision of the Kansas law defining stillbirth is planned which will change the basis of reporting stillbirths from 20 weeks gestation to 1 pound or 450 grams.)

#### **C. Perinatal Death**

A perinatal death is a death of a live born child within the first seven days of life or the death of a foetus who has reached the weight of 500 grams.

#### **D. Infant Death Rate**

Infant death rate is the number of infant deaths per 1,000 live births.

#### **E. Neonatal Death Rate**

Neonatal death rate is the number of neonatal deaths per 1,000 live births.

#### **F. Foetal Death Rate**

Foetal death rate (stillbirth death rate) is the number of stillbirths per 1,000 reported total births.

### **G. Perinatal Death Rate**

Perinatal death rate is the number of perinatal deaths per 1,000 total births.

### **II. Laws and Regulations**

#### **A. Birth Registration**

##### **1. LAWS**

65-2401. *Uniform Vital Statistics Act. Definitions.* As used in this act: (1) "Vital statistics" includes the registration, preparation, transcription, collection, compilation, and preservation of data pertaining to birth (adoption, legitimation), death, stillbirth, marriage, divorce, and data incidental thereto. (2) "Live birth" means the birth of a child who shows evidence of life after the child is entirely outside the mother. (3) "Stillbirth" means a birth after twenty (20) weeks gestation which is not a live birth. (4) "Dead body" means a lifeless human body or such parts of the human body or the bones thereof from the state of which it reasonably may be concluded that death recently occurred. (5) "Person in charge of interment" means any person who places or causes to be placed a stillborn child or dead body or the ashes, after cremation, in a grave, vault, urn or other receptacle, or otherwise disposes thereof. (6) "Board" means the state board of health. [L. 1951, ch. 355, § 1; June 30.]

65-2402. *Duties of state board of health.* The state board of health shall: (1) Establish a division of vital statistics with suitable offices properly equipped for the preservation of its official records. (2) Maintain a complete cross-index on all records filed under the provisions of this act. (3) Install a state-wide system of vital statistics. (4) Make and may amend, after notice and hearing, necessary regulations, give instructions and prescribe forms for collection, transcribing, compiling and preserving vital statistics. (5) Enforce this act and the regulations made pursuant thereto. [L. 1951, ch. 355, § 2; June 30.]

65-2409. *Compulsory registration of births.* Within the time prescribed by the board a certificate of every birth shall be filed with the local registrar of the district in which the birth occurred, by the physician, midwife, or other legally authorized person in attendance at the birth; or if not so attended, by one of the parents. [L. 1951, ch. 355, § 9; June 30.]

65-2410. *Local registrar to prepare birth certificate.* If neither parent of the newborn child whose birth is



unattended as above provided is able to prepare a birth certificate, the local registrar shall secure the necessary information from any person having knowledge of the birth and prepare and file the certificate. The board shall prescribe the time within which a supplementary report furnishing information omitted from the original certificate may be returned for the purpose of completing the certificate. Certificates of birth completed by a supplementary report shall not be considered "delayed" or "altered." [L. 1951, ch. 355, § 10; June 30.]

*65-2411. Registration of foundlings; foundling report.* (1) Whoever assumes the custody of a child of unknown parentage shall immediately report to the local registrar in writing: (a) The date and place of finding or assumption of custody; (b) sex, color or race, and approximate age of child; (c) name and address of the person or institution with whom the child has been placed for care, and (d) name given to the child by the finder or custodian. (2) The place where the child has been found or custody assumed shall be known as the place of birth and the date of birth shall be determined by approximation. (3) The report shall constitute the certificate of birth. (4) If the child is identified and a regular certificate of birth is found or obtained, the report shall be sealed and filed and may be opened only by court order. [L. 1951, ch. 355, § 11; June 30.]

*65-2412. Registration of deaths and stillbirths.* A certificate of every death or stillbirth shall be filed with the local registrar of the district in which the death or stillbirth occurred within three (3) days after the occurrence is known; or if the place of death or stillbirth is not known then with the local registrar of the district in which the body is found within twenty-four (24) hours thereafter. In every instance a certificate shall be filed prior to interment or other disposition of the body. [L. 1951, ch. 355, § 12; June 30.]

*65-2413. Death and stillbirth certificates.* (1) The funeral director or person in charge of interment shall file with the local registrar of the district in which the death or stillbirth occurred, or the body was found, a certificate of death or stillbirth within three (3) days after the occurrence. (2) In preparing a certificate of death or stillbirth the funeral director or person in charge of interment shall obtain and enter on the certificate the personal data required by the board from the persons best qualified to supply them. He shall present the certificate of death to the physician last in attendance upon the deceased or to the coroner having jurisdiction who shall thereupon certify the cause of death according to his best knowledge and belief. He shall present the certificate of stillbirth to the physician or other person in attend-

ance at the stillbirth, who shall certify the stillbirth and such medical data pertaining thereto as he can furnish. (3) Thereupon the funeral director or person in charge of interment shall notify the appropriate local registrar, if the death occurred without medical attendance, or the physician last in attendance fails to sign the death certificate. In such event the local registrar shall inform the local health officer and refer the case to him for immediate investigation and certification of the cause of death prior to issuing a permit for burial, cremation or other disposition of the body. When the local health officer is not a physician or when there is no such officer, the local registrar may complete the certificate on the basis of information received from relatives of the deceased or others having knowledge of the facts. If the circumstances suggest that the death or stillbirth was caused by other than natural causes, the local registrar shall refer the case to the coroner for investigation and certification. [L. 1951, ch. 355, § 13; June 30.]

*65-2414. Delayed determination of cause of death.* If the cause of death cannot be determined within three (3) days, the certification of its cause may be filed after the prescribed period, but the attending physician or coroner shall give the local registrar of the district in which death occurred, written notice of the reason for the delay, in order that a permit for the disposition of the body may be issued. [L. 1951, ch. 355, § 14; June 30.]

*65-2415. Form of certificates.* The forms of certificates shall include as a minimum the items required by the respective standard certificates as recommended by the national office of vital statistics subject to approval of and modification by the board. The form and use of such certificate shall be subject to the provisions of section 23 [\*]. [L. 1951, ch. 355, § 15; June 30.]

*65-2416. Certificates as evidence.* Certificates filed within six (6) months after the time prescribed therefor shall be prima facie evidence of the facts therein stated. Data therein pertaining to the father of a child are prima facie evidence only if the alleged father is the husband of the mother; if not, the data pertaining to the father of a child are not evidence in any proceeding adverse to the interests of the alleged father, or of his heirs, next of kin, devisees, legatees or other successors in interest, if the paternity is controverted. [L. 1951, ch. 355, § 16; June 30.]

*65-2422. Disclosure of records.* (1) The records and files of the division of vital statistics are open to inspection, subject to the provisions of this act and regulations of the board; but it is unlawful for any officer or employee of the state to disclose data con-

\* Comparable section referred to in the Uniform Vital Statistics Act appears herein as § 65-2422.

tained in vital statistical records, except as authorized by this act and the board. (2) Disclosure of illegitimacy of birth or of information from which it can be ascertained, may be only upon order of a court in a case where such information is necessary for the determination of personal or property rights and then only for such purpose. (3) The state registrar shall not permit inspection of the records or issue a certified copy of a certificate or part thereof unless he is satisfied that the applicant therefor has a direct interest in the matter recorded and that the information therein contained is necessary for the determination of personal or property rights. His decision shall be subject, however, to review by the board or a court under the limitations of this section. (4) The board shall permit the use of data contained in vital statistical records for research purposes only, but no identifying use thereof shall be made. (5) Subject to the provisions of this section the board may direct local registrars to make a return upon the filing of birth, death and stillbirth certificates with them of certain data shown thereon to federal, state or municipal agencies. Payment by such agencies for such services may be made through the state registrar to local registrars as the board shall direct. [L. 1951, ch. 355, § 22; June 30.]

65-2423. *Adoption cases.* In cases of adoption the state registrar upon receipt of a certified order of adoption shall prepare a supplementary certificate in the new name of the adopted person; and seal and file the original certificate of birth with said certified copy attached thereto. Such sealed documents may be opened by the state registrar only upon the demand of the adopted person if of legal age or by an order of court. Upon receipt of the certified copy of a court order of annulment of adoption the state registrar shall restore the original certificate to its original place in the files. [L. 1951, ch. 355, § 23; June 30.]

65-2424. *Legitimation.* In cases of legitimation the state registrar upon receipt of proof thereof shall prepare a new certificate of birth in the new name of the legitimated child. The evidence upon which the new certificate is made and the original certificate shall be sealed and filed and may be opened only upon order of court. [L. 1951, ch. 355, § 24; June 30.]

65-2425. *Institution inmates or patients; records and reports.* Persons in charge of institutions for care of [or] correction or for treatment of disease, injury or childbirth shall record and report all statistical data required by this act relating to their inmates or patients. [L. 1951, ch. 355, § 25; June 30.]

65-2434. *Penalties.* (1) Any person who willfully makes or alters any certificate or certified copy thereof provided for in this act, except in accordance with the provisions of this act, shall be fined not more than

one thousand dollars (\$1,000), or be imprisoned not exceeding six (6) months, or both fined and imprisoned. (2) Any person who knowingly transports or accepts for transportation, interment or other disposition a dead body without an accompanying permit issued in accordance with the provisions of this act, shall be fined not more than five hundred (\$500). (3) Except where a different penalty is provided in this section, any person who violates any of the provisions of this act or neglects or refuses to perform any of the duties imposed upon him by this act, shall be fined not more than one hundred dollars (100). [L. 1951, ch. 355, § 34; June 30.]

39-739. *Sight handicapped persons; reports to state board of health; forms.* Every health and social agency, attending or consulting physician or nurse, shall report in writing to the state board of health, the name, age and residence of all patients or persons who are handicapped in vision, and who come within the definition of "the blind" as defined in section 39-702 of the General Statutes Supplement of 1947: *Provided*, The reporter may omit such registration upon the objection of the adult blind. Such report shall be made within thirty (30) days after a first consultation, interview or meeting of the agency, physician or nurse, and the blind person, and shall be on a form prescribed by the state board of health. [L. 1949, ch. 279, § 1; June 30.]

## 2. REGULATIONS 28-34-109

g. The hospital shall prepare a birth certificate for every child born therein, obtain attending physician's signature thereon, and forward it to the local registrar of vital statistics within five days after date of birth.

## 3. MEDICAL DATA ON THE REVISED BIRTH AND STILLBIRTH FORMS

a. (Medical Data Section of Certificate of Live Birth, illustrated, see page 494.)

b. (Medical Data Section of Certificate of Stillbirth, illustrated, see page 495.)

c. (Guide to Use of the Revised Birth and Stillbirth Certificates, illustrated, see pages 496 and 497.)

## B. Newborn Infant Treatment of Eyes

### 1. LAWS

65-153b. *Newly born infant; treatment of eyes.* Any physician or any person authorized by law to act as an obstetrician shall immediately upon the birth of an infant instill in the eyes of such newly born infant a prophylactic solution approved by the state board of health: *Provided, however*, That any person or parent shall not be required to employ such prophylactic if

objection is made by a written statement to the attending obstetrician within three days from the birth of said child: *And provided further*, That said written statement shall be attached to the birth certificate. [L. 1929, ch. 218, § 1; May 28.]

65-153c. *Same; duty of physician and others.* That any physician or any person authorized by law to act as an obstetrician in this state or any other person having the care of an infant, within six (6) months after its birth, who shall detect any inflammation, swelling or redness in the eyes of any such infant or any unnatural discharge therefrom, shall, if he be a physician, treat such child with the necessary prophylactic, or, if he be other than a physician, shall immediately report the condition and the location of such infant to the local board of health. [L. 1929, ch. 218, § 2; May 28.]

65-153d. *Same; rules and regulations.* It shall be the duty of the state board of health to make the necessary regulations for the enforcement of this act. [L. 1929, ch. 218, § 3; May 28.]

65-153e. *Same; penalty for violating §§ 65-153b to 65-153e.* Any person who shall willfully violate any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than five hundred

(§500) dollars or by confinement in the county jail for six months. [L. 1929, ch. 218, § 4; May 28.]

2. REGULATIONS

Regulation regarding treatment of the eyes of newborn infants. Effective December 17, 1953.

"The only prophylactic solution approved for instillation into the eyes of newborn infants shall be a one per cent (1 per cent) aqueous solution of silver nitrate that has been prepared by the laboratory of the State Board of Health or a reputable pharmaceutical organization, placed in individual wax ampoules, and distributed in a container which bears clearly the name and percentage strength of the solution and an expiration date beyond which the product must not be used, except that hospitals approved for teaching in obstetrics and gynecology by the Council on Medical Education and Hospitals of the American Medical Association may on special request receive permission from the Board of Health to carry out controlled experiments with the use of solutions or suspensions of antibiotic or chemotherapeutic substances, after duly certifying that adequate records will be kept, that adequate controls will be maintained, that the results of the experimental studies will be made available to other physicians and hospitals, and that no harmful

CERTIFICATE OF LIVE BIRTH (Continued)

(Do Not Write In This Box)

NOTE: Please use X to mark boxes

<b>PREGNANCY</b> 4. Medical Supervision of Pregnancy Begun: 1. <input type="checkbox"/> 1st Trimester 2. <input type="checkbox"/> 2nd Trimester 3. <input type="checkbox"/> 3rd Trimester 4. <input type="checkbox"/> At Del. 5. Diet During Pregnancy 1. <input type="checkbox"/> Met the recommended nutritional allowances established for pregnancy by the National Research Council. 2. <input type="checkbox"/> Exceeded the allowances 3. <input type="checkbox"/> Failed to meet the allowances 6. Complications of Pregnancy (Check 1 or more) 1. <input type="checkbox"/> None 12. <input type="checkbox"/> Tuberculosis 2. <input type="checkbox"/> Pre-eclampsia 13. <input type="checkbox"/> Syphilis 3. <input type="checkbox"/> Eclampsia 14. <input type="checkbox"/> German measles 4. <input type="checkbox"/> Hypertensive disease 15. <input type="checkbox"/> Other viral infection *5. <input type="checkbox"/> Uterine bleeding not associated with labour 16. <input type="checkbox"/> Pernicious vomiting 6. <input type="checkbox"/> Nephritis 17. <input type="checkbox"/> Psychosis or severe psychoneurosis 7. <input type="checkbox"/> Pyelitis *20. <input type="checkbox"/> Injury or operation 8. <input type="checkbox"/> Significant anemia *30. <input type="checkbox"/> Other 9. <input type="checkbox"/> Significant obesity * Please specify 10. <input type="checkbox"/> Rheumatic heart disease 11. <input type="checkbox"/> Diabetes	<b>LABOUR</b> 8. Was Labour Induced? 2. <input type="checkbox"/> No 1. <input type="checkbox"/> Yes → How? 9. Conditions of Labour (Check 1 or more) 1. <input type="checkbox"/> Normal 6. <input type="checkbox"/> Breech presentation 2. <input type="checkbox"/> Placenta praevia 7. <input type="checkbox"/> Other malpresentation 3. <input type="checkbox"/> Premature separation of placenta 8. <input type="checkbox"/> Cephalo-pelvic disproportion 4. <input type="checkbox"/> Other intrapartum hemorrhage 9. <input type="checkbox"/> Labour 30 hours or more 5. <input type="checkbox"/> Prolapse of cord *10. <input type="checkbox"/> Other * Specify, please <b>LABOUR-DELIVERY</b> 10. Sedation 11. Anesthesia 1. <input type="checkbox"/> None 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Light 2. <input type="checkbox"/> Local 3. <input type="checkbox"/> Medium 3. <input type="checkbox"/> Regional 4. <input type="checkbox"/> Heavy 4. <input type="checkbox"/> General 12. At Moment of Delivery Mother Was: 1. <input type="checkbox"/> Fully conscious 2. <input type="checkbox"/> Semi-conscious 3. <input type="checkbox"/> Unconscious	<b>DELIVERY</b> 13. Method of Delivery 1. <input type="checkbox"/> Spontaneous 5. <input type="checkbox"/> Low forceps 2. <input type="checkbox"/> Caesarean section 6. <input type="checkbox"/> Mid forceps 3. <input type="checkbox"/> Breech extraction 7. <input type="checkbox"/> High forceps 4. <input type="checkbox"/> Internal version and extraction *8. <input type="checkbox"/> Other * Please specify <b>THE LIVEBORN INFANT</b> 14. Birth Weight Gms. _____ or Lbs. _____ Oz. _____ 15. Condition at Birth (Check 1 or more) 1. <input type="checkbox"/> Normal *4. <input type="checkbox"/> Erythrablasis 2. <input type="checkbox"/> Slight asphyxia—resuscitation required *5. <input type="checkbox"/> Birth injury 3. <input type="checkbox"/> Severe asphyxia—extensive resuscitation required *6. <input type="checkbox"/> Congenital malformation *7. <input type="checkbox"/> Other * Please specify <b>THE PLACENTA</b> 16. Condition of the Placenta 1. <input type="checkbox"/> Normal 2. <input type="checkbox"/> Abnormal (please specify)
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REMARKS

(Reverse side may be used for additional data)

THIS IS NOT A PART OF THE CERTIFICATE OF LIVE BIRTH  
Kansas State Board of Health Report of Prenatal Serological Test As Required By General Statutes of Kansas, 1949, 65-153F, 153G  
Serological Test Made: ☐ 1st Trimester ☐ 2nd Trimester ☐ 3rd Trimester ☐ At Delivery ☐ Not Performed  
If No Test Made State Reason: \_\_\_\_\_



effects may be expected to accrue to newborn infants as a result of the use of such other solutions or suspensions. The State Board of Health shall furnish silver nitrate solution in wax ampoules without charge to any licensed hospital, maternity home, physician, or person authorized by law to act as an obstetrician."

### C. Prenatal Serological Tests

#### 1. LAWS

65-153f. *Prenatal serological tests for syphilis.* Each physician or other person attending a pregnant woman in this state during gestation, shall, with the consent of the patient in the case of each woman so attended, take or cause to be taken a sample of blood of such woman within fourteen days after diagnosis of same is made, and submit such sample for standard serological tests for syphilis to either a private laboratory or to the public health laboratory of the state board of health at Topeka, or to laboratories co-operating with the state board of health. The result of all laboratory tests shall be kept confidential and shall be reported on standard forms prescribed and furnished by the state board of health. [L. 1943, ch. 225, § 1; June 28.]

65-153g. *Same; how reported.* In reporting every Birth and stillbirth, physicians and others permitted

to attend pregnancy cases and required to report births and stillbirths shall state on a separate sheet accompanying the birth certificate or stillbirth certificate, as the case may be, whether a blood test for syphilis has been made during such pregnancy upon a specimen of blood taken from the woman who bore the child for which birth or stillbirth certificate is filed, and if made the date when such test was made, and if not made, the reason why such test was not made. Neither the fact that such a test was or was not made or was or was not required by law nor the result of any such test shall appear upon the birth certificate or be certified to any person for any purpose. [L. 1943, ch. 225, § 2; June 28.]

65-153b. *Same; misdemeanor.* Any person willfully violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in a sum not less than ten dollars nor more than one hundred dollars. [L. 1943, ch. 225, § 3; June 28.]

### D. Licensure of Maternity Hospitals or Homes

#### 1. LAW

65-501. *Maternity hospitals or homes, and homes for infants or children; license from board of health.*

#### CERTIFICATE OF STILLBIRTH (FETAL DEATH) (Continued)

(Do Not Write In This Box)

NOTE: Please use X to mark boxes

PREGNANCY		LABOUR		DELIVERY	
4. Medical Supervision of Pregnancy Begun: 1. <input type="checkbox"/> 1st Trimester 2. <input type="checkbox"/> 2nd Trimester 3. <input type="checkbox"/> 3rd Trimester 4. <input type="checkbox"/> At Del.		8. Was Labour Induced? 2 <input type="checkbox"/> No 1. <input type="checkbox"/> Yes → How?		13. Method of Delivery 1. <input type="checkbox"/> Spontaneous 5. <input type="checkbox"/> Low forceps 2. <input type="checkbox"/> Caesarean section 6. <input type="checkbox"/> Mid forceps 3. <input type="checkbox"/> Breech extraction 7. <input type="checkbox"/> High forceps 4. <input type="checkbox"/> Internal version and extraction *8. <input type="checkbox"/> Other * Please specify	
5. Diet During Pregnancy 1. <input type="checkbox"/> Met the recommended nutritional allowances established for pregnancy by the National Research Council. 2. <input type="checkbox"/> Exceeded the allowances 3. <input type="checkbox"/> Failed to meet the allowances		9. Conditions of Labour (Check 1 or more) 1. <input type="checkbox"/> Normal 6. <input type="checkbox"/> Breech presentation 2. <input type="checkbox"/> Placenta previa 7. <input type="checkbox"/> Other malpresentation 3. <input type="checkbox"/> Premature separation of placenta 8. <input type="checkbox"/> Cephalo-pelvic disproportion 4. <input type="checkbox"/> Other intrapartum hemorrhage 9. <input type="checkbox"/> Labour 30 hours or more 5. <input type="checkbox"/> Prolapse of cord *10. <input type="checkbox"/> Other * Specify, please		14. Birth Weight Gms _____ or Lbs _____ Oz _____	
6. Complications of Pregnancy (Check 1 or more) 1. <input type="checkbox"/> None 12. <input type="checkbox"/> Tuberculosis 2. <input type="checkbox"/> Pre-eclampsia 13. <input type="checkbox"/> Syphilis 3. <input type="checkbox"/> Eclampsia 14. <input type="checkbox"/> German measles 4. <input type="checkbox"/> Hypertensive disease 15. <input type="checkbox"/> Other viral infection *5. <input type="checkbox"/> Uterine bleeding not associated with labour 16. <input type="checkbox"/> Pernicious vomiting 6. <input type="checkbox"/> Nephritis 17. <input type="checkbox"/> Psychosis or severe psychoneurosis 7. <input type="checkbox"/> Pyelitis *20. <input type="checkbox"/> Injury or operation 8. <input type="checkbox"/> Significant anemia *30. <input type="checkbox"/> Other 9. <input type="checkbox"/> Significant obesity * Please specify 10. <input type="checkbox"/> Rheumatic heart disease 11. <input type="checkbox"/> Diabetes		LABOUR-DELIVERY 10. Sedation 11. Anesthesia 1. <input type="checkbox"/> None 1. <input type="checkbox"/> None 2. <input type="checkbox"/> Light 2. <input type="checkbox"/> Local 3. <input type="checkbox"/> Medium 3. <input type="checkbox"/> Regional 4. <input type="checkbox"/> Heavy 4. <input type="checkbox"/> General		15. Condition at Birth (Check 1 or More) 1. <input type="checkbox"/> Normal appearance *4. <input type="checkbox"/> Birth injury 2. <input type="checkbox"/> Some maceration *5. <input type="checkbox"/> Congenital malformation 3. <input type="checkbox"/> Severe maceration *6. <input type="checkbox"/> Other * Please Specify	
7. Was Mother's Blood Tested for Rh Factor? 3 <input type="checkbox"/> No 2. <input type="checkbox"/> Yes, Rh positive 1. <input type="checkbox"/> Yes, Rh negative → Was father's blood tested for Rh factor? 1. <input type="checkbox"/> Yes, Rh positive 2. <input type="checkbox"/> Yes, Rh negative 3. <input type="checkbox"/> No		12. At Moment of Delivery Mother Was: 1. <input type="checkbox"/> Fully conscious 2. <input type="checkbox"/> Semi-conscious 3. <input type="checkbox"/> Unconscious		THE STILLBORN INFANT 16. Condition of the Placenta 1. <input type="checkbox"/> Normal 2. <input type="checkbox"/> Abnormal (please specify)	
REMARKS					

(Reverse side may be used for additional data)

THIS IS NOT A PART OF THE CERTIFICATE OF STILLBIRTH  
 Kansas State Board of Health Report of Prenatal Serological Test As Required By General Statutes of Kansas, 1949, 65-153F, 153G

Serological Test Made: ☐ 1st Trimester ☐ 2nd Trimester ☐ 3rd Trimester ☐ At Delivery ☐ Not Performed

If No Test Made State Reason: \_\_\_\_\_

# A GUIDE TO THE USE OF THE REVISED

## General Statement

The purpose of the revised "medical and health" sections is to obtain medical information which ultimately will improve medical care. Questionnaires of this sort have many weaknesses, as they are designed around situations in which everything is usually "normal." It is expected that the good physician will appreciate these weaknesses, and compensate for them by supplying additional information in instances which depart from the average in such a way that they are not properly explained by the routine items of information. Space for additional material is provided in a number of blank spaces, in the section entitled "Remarks," and on the whole reverse sides of the lower portions of the two certificates.

In many cases, significant information becomes available after the filing of a birth or stillbirth certificate. An apparently well baby may be found to have a congenital malformation, or the autopsy report on a fetus may precisely fix the cause of death. Such information may be transmitted by a letter addressed to: The Registrar of Vital Statistics, State Board of Health, Topeka, Kansas, giving the name, date of birth and place of birth of the baby, and it will then be added to the certificate previously filed.

## Section by Section Commentary

### 1. LENGTH OF PREGNANCY

This question has been retained because of its possible importance in multiple pregnancies, and certain individual cases, in which birth weight may not be an adequate index of the maturity of the infant.

### 2. WEIGHT OF FETUS

The weight may be given in pounds and ounces, or in Grams. Birth weight is probably the most important single variable in perinatal mortality, and should be obtained in all cases. (See also remarks for Section 14, below.)

### 3. LEGITIMACY

Legitimate and illegitimate infants have different survival rates, and will differ in certain other medical respects. These differences cannot be properly evaluated unless the physician categorizes each infant with considerable accuracy, even though he is not expected to be an expert on the finer legal aspects of legitimacy. In general, a baby is regarded as legitimate if his mother was married at the time of conception or any time afterward prior to delivery. Contrariwise, the infant is illegitimate if she was not married at any time during the pregnancy. (The question on legitimacy touches the vexed question of the physician's responsibility in entering the name of the father on the certi-

cate. In essence, the physician is required by law to state the mother who the father was, and to enter the name she gives on the certificate. She may withhold the name, and the entry should be made "Name Withheld by Mother" (in which case an effort should be made to get age, nationality, etc.). She may state that she cannot identify the father, in which case, *and only in which case*, the entry should be made as "Unknown." The physician is in no way responsible, legally or morally, for the accuracy of the information given by the mother.)

### 4. MEDICAL SUPERVISION OF PREGNANCY BEGUN

When did the patient first report for prenatal care? The importance of this question is obvious. In borderline cases, or when the physician cannot be sure without checking distant records, the best possible estimate should be given in the expectation that small errors will cancel themselves out in any considerable number of certificates. It is assumed that after a woman's reports for prenatal care, she will return to her physician with reasonable regularity thereafter until pregnancy is terminated. *For the occasional patient who does not follow this rule, a note should be included under "Remarks."*

### 5. DIET DURING PREGNANCY

There is conflicting evidence about the importance of diet during pregnancy, insofar as it affects the character of labour and delivery, and the quality of the newborn baby. It is possible that a defective diet prior to conception may lead to certain abnormalities, and a defective diet during the latter part of pregnancy, to others. The only yardstick available at present is the recommendation of the National Research Council, which in effect calls for a better-than-average nutritional intake during pregnancy, and particularly for a specific increase in protein not accompanied by an increase in fats or carbohydrates. To meet the National Research Council's allowances, the diet must be very good, and strong on protein. To exceed them, the diet must be absolutely superlative. *The average diet will more often than not fall short.*

An explanatory note should be given under "Remarks" (1) when the diet is so bad that "Failed to meet the recommended allowances" is an understatement, or (2) in special cases, as when a patient enters pregnancy in such a poor plane of nutrition that even a good diet does not bring her to term well nourished.

### 6. COMPLICATIONS OF PREGNANCY

The more common and important complications have been listed, and space left for the physician to add any others that may have been significant for a particular patient. When more than one complication is listed, it will be necessary for the non-medical

## TH AND STILLBIRTH CERTIFICATES

ed coder to assign priority of importance. This be done by a rubric or "rule," a complicated guide- which gives the priority of every condition *based on the usual or average significance of the complication*. For example, syphilis would usually be considered more important than pernicious vomiting, and less important than eclampsia. The rubric works well enough for average cases, and very badly for atypical ones. *For cases who depart from the average, the physician should make a note in the blank space provided as to the relative importance of the several complications, and an explanatory statement under "Remarks."*

WAS MOTHER'S BLOOD TESTED FOR RH FACTOR  
The items under this heading are self-explanatory. It is not felt advisable to specifically query the less frequent A and B incompatibilities, but certainly these should be reported if known, with a note about the test on the child, if any.

WAS LABOUR INDUCED  
It is taken for granted that when labour has been induced, the reason for the induction will appear elsewhere on the certificate, usually under "Complications of Pregnancy." When this is not the case, an entry should be made under "Remarks" to explain the indications.

### CONDITIONS OF LABOUR

A list of the more common conditions of labour is presented, and space left for entering additional ones. With "Complications of Pregnancy," more than one may be checked, and when more than one item is checked a priority of importance will be assigned by rubric that is *based on the usual or average significance of the condition*. For example, premature separation of the placenta is usually a catastrophic sort of event for both mother and baby that would usually rank any other item on the list. It is not always catastrophic, however, and in such cases a punch card should be badly miscoded unless the physician supplies additional information, in the blank lines of Section 9 under "Remarks," to explain the facts for his individual patient.

"Premature labour" is not a listed condition, and should not be mentioned, and the information is automatically available from the gestational age and birthweight.

### 10-11-12. SEDATION AND ANESTHESIA

It has long been held that sedation and anesthesia employed during the first two stages of labour have measurable effect upon the viability and integrity of the infant. The effect is not a constant one, however, and it appears to be subject to many variables. The preceding questions—10, 11 and 12, attempt to collect

fixed items of information so that they may be correlated with such other factors as complications of pregnancy and labour, and birthweight.

No. 10 asks for the level of sedation in the terms usually employed by the physician. "Light" may be taken as nominal sedation, using the minimum amounts of a drug necessary to produce an observable pharmacologic effect. "Heavy" is extreme sedation, with complete removal of cortical control. "Medium" is somewhere in between.

No. 11 is self-explanatory. Several different kinds of anesthesia may be used for the same patient, and therefore more than one category may be checked.

No. 12 is a control question for the two preceding ones. There are an infinite number of possible combinations of drugs, levels of administration, and timing of dosage. It is not possible to obtain all the details with any reasonable sort of questionnaire. The state of consciousness of the mother at the moment of delivery, however, gives much information as to the net effect of the sedative and anesthetic agents used—at the particular moment when their effect on the respiratory and other vital centers of the infant becomes significant.

### 13. METHOD OF DELIVERY

The common methods of delivery are listed, and a few uncommon ones. Multiple check-offs in this section should be rare, and usually self-explanatory, as with application of forceps to the aftercoming head, or an attempt at vaginal delivery followed by Cesarean section.

### 14. BIRTH WEIGHT

It will be noted that this item of information is requested once in the upper portion of the certificates, and again in the lower section. It was necessary to have one written-in item appear in both places for purposes of statistical accuracy, and the birth weight appeared to be the item that could be given most easily.

### 15. THE LIVEBORN INFANT OR THE STILLBORN INFANT

These sections ask for general descriptive information about the condition or state of the infant as it appeared to the physician at the time of delivery. They are obviously of great interest in any study of perinatal mortality, and should be filled out as informatively as possible. (For example, congenital malformations are frequently multiple, and in such cases *all* the malformations ought to be noted even if this means spilling over into the section on "Remarks" or even to the back of the certificate.)



## 16. THE PLACENTA

The desired information in this case relates to the obvious normality or abnormality of the placenta on inspection (although information obtained from microscopic studies will be gratefully received). Such information is important as it relates to postmature infants, and to the effects of certain of the complications of pregnancy. *The only matters of interest are things that might have affected the infant prior to birth: an incomplete placenta, indicating retention, while obviously of*

great obstetric interest, does not affect the infant and should not be noted as an abnormality.

## The Report of the Prenatal Serologic Test

Kansas law requires every physician to report the performance of a prenatal serologic test, or to submit a statement of the reason that no test was made. Previously this report had to be submitted on a separate form which was attached to the birth certificate. The final entry of the new "Medical and Health" sections meets statutory requirements and should be much more convenient for the physician.

That on and after July 1, 1919, it shall be unlawful for any person, firm, corporation or association to conduct or maintain a maternity hospital or home, or boarding, receiving or detention home for infants under three years of age or for children under sixteen years of age as herein defined, without having in full force a written license thereof from the state board of health: *Provided*, That nothing in this act shall apply to any state institution maintained and operated by the state. [L. 1919, ch. 210, § 1; June 17; R. S. 1923, § 65-501.]

## 2. REGULATIONS

No maternity home shall accept for care any pregnant woman who has an important complication of labor or pregnancy unless the attending physician certifies in writing that the patient is to be admitted as an emergency because hospital care is not immediately available. The term "important complication of pregnancy or labor" shall include: toxemia of pregnancy, hypertension, cardiac disease, chronic nephritis, tuberculosis, diabetes, previous delivery of any erythroblastotic infant or previous delivery by Cesarean Section, premature separation of the placenta, placenta previa, *premature labor*, twin pregnancies, gross fetopelvic disproportion, mal-presentations of the fetus commonly involving internal manipulation or application of forceps at a higher level than the outlet, breech presentations, and any other condition which carries an important risk to mother or child over and above the risk of normal delivery.

No Grade Two home for unmarried mothers shall undertake to deliver on its premises any pregnant woman who has an important complication of pregnancy or labor as defined above. It is recommended that Grade One homes for unmarried mothers, and maternity clinics, arrange to deliver such patients elsewhere.

*Facilities for Care of the Newborn.* Every maternity home, maternity clinic, or home for unmar-

ried mothers (1) shall provide a separate room to house newborn infants that will substantially comply with the requirements for a nursery in the hospital standards of this state, or (2) may room infants with their mothers provided that only two individuals are allowed to visit any one mother during her stay at the home, that no more than three infants and three mothers are roomed together, and that a sufficient amount of space is assigned to each mother and child (at least eighty square feet). Facilities must be provided for administering heat and oxygen to a newborn infant as required. Each infant shall be provided with a separate bassinet on an individual stand. A thermometer shall be provided for each infant if temperatures are taken routinely. All care shall be given to each infant in its own bassinet; the use of common bathing or dressing tables is prohibited. Scales shall be freshly covered for the weighing of each infant. All clothing, diapers, etc., used shall (1) either be provided and laundered by the maternity home or (2) be autoclaved before use if furnished by the parents. Attendants shall wash their hands and dry them on disposable paper towels before and after handling an infant.

No maternity home, or maternity clinic, or home for unmarried mothers shall continue to keep an infant after its mother's discharge *unless* (1) the infant is one weighing less than five lbs. at birth who is kept at the home under the written orders of the attending physician or (2) the infant is an orphan, or dependent, or neglected, or an illegitimate child, and the home has received written notification from the local county board of welfare, or an accredited agent of a state-licensed child welfare agency, that foster placement for the child is being sought. Under no circumstances shall such boarding care be given in maternity homes or maternity clinics for a period of longer than four weeks after the birth of the child, and under no circumstances shall any maternity home,

clinic, or home for unmarried mothers receive back an infant for boarding care after it has once been discharged.

*Preparation of Infant Formulas.* All milk mixtures and other fluids offered to newborn infants shall be prepared according to the technique of terminal sterilization, as defined in the Kansas Hospital Standards.

## **E. Hospital Standards**

### **1. LAWS**

65-425. *Licensing, inspection and regulation. Definitions.* As used in this act: (a) "Hospital" means a place devoted primarily to the maintenance and operation of facilities for the diagnosis, treatment or care for not less than twenty-four hours in any week of four or more nonrelated individuals suffering from mental or physical illness, disease, injury, or deformity, or a place devoted primarily to providing for not less than twenty-four hours in any week of obstetrical or other medical or nursing care for four or more non-related individuals. The term "hospital" shall include public health centers, but shall not include maternity homes or institutions primarily devoted to domiciliary care, such as boarding homes and homes for the aged or to homes or institutions which, as an exercise of religious freedom, are conducted in conformity with the practice of the religious tenets of any church in the ministration to the sick or suffering by spiritual means, and provided that quarantine regulations relating to contagious diseases are not infringed upon. (b) "Person" means any individual, firm, partnership, corporation, company, association, or joint stock association and the legal successor thereof. (c) "Governmental unit" means the state, or any county, municipality, or other political subdivision thereof; or any department, division, board or other agency of any of the foregoing. (d) "Licensing agency" means the state board of health. [L. 1947, ch. 329, § 1; L. 1949, ch. 328, § 1; June 30.]

65-426. *Purpose of act.* The purpose of this act is to provide for the development, establishment and enforcement of standards: (1) For the care and treatment of individuals in hospitals; and (2) for the construction, maintenance and operation of hospitals, which, in the light of advancing knowledge, will promote safe and adequate treatment of such individuals in hospitals. [L. 1947, ch. 329, § 2; June 30.]

65-427. *Licensure.* After July 1, 1948, no person or governmental unit, acting severally or jointly with any other person or governmental unit shall establish, conduct or maintain a hospital in this state without a license under this law. [L. 1947, ch. 329, § 3; June 30.]

65-431. *Rules, regulations, and enforcement.* The

licensing agency subject to the approval of the advisory hospital council, shall adopt, amend, promulgate and enforce such rules, regulations and standards with respect to all hospitals or different types of hospitals to be licensed hereunder as may be designed to further the accomplishment of the purposes of this law in promoting safe and adequate treatment of individuals in hospitals in the interest of public health, safety and welfare: *Provided*, That no rule or regulation shall be made by the licensing agency which would discriminate against any practitioner of the healing art who is licensed to practice in this state: *Provided further*, That boards of trustees or directors of institutions licensed pursuant to the provisions of this act shall have the right to select the professional staff members of such institutions and select and employ internes, nurses, and other personnel and no rules, regulations or standards of the licensing agency shall be valid which, if enforced, would interfere in such selection or employment: *And provide further*, That in formulating rules and regulations, the agency shall give due consideration to the size of the hospital, the type of service it is intended to render, the scope of such service and the financial resources in and the needs of the community which such institution serves. [L. 1947, ch. 329, § 7; June 30.]

### **2. REGULATIONS**

The following is from "Hospital Standards, Rules and Regulations, Kansas State Board of Health, Hospital Facilities Division."

#### **28-34-115. Maternity Nursing Service**

a. In larger hospitals with a well-defined obstetrical department, the nurses assigned to that department shall not care for other types of patients. In small hospitals where division of nursing service is impossible, strict medical asepsis shall be observed.

b. Maternity patients shall not be placed in wards or rooms with patients other than maternity patients. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### **28-34-116. Provisions and Equipment for Delivery**

a. The delivery room shall be used for delivery of non-infected patients and for newborn circumcision. Patients with any evidence of infection or possible infection shall be delivered in a room where medical asepsis can be observed.

b. The operating room shall not be used for delivery except in the case of Caesarean section or for non-infected patients when the delivery rooms are in use.

c. There shall be a suitable delivery table equipped for operative deliveries and treatment of

shock. The pad shall be protected with waterproofed sheeting in good condition.

d. The delivery room shall be equipped with suitable tables or stands for instruments, utensils, and necessary supplies.

e. An adequate supply of utensils and sterile linen, dressings, gloves, and face masks shall be in readiness for all deliveries.

f. Facilities for administration of oxygen and sterile equipment for administration of blood transfusions and intravenous or subcutaneous therapeutic solutions shall be readily available. A unit of plasma shall be kept in the hospital at all times.

g. There shall be ready at all times equipment for general anesthesia, and a minimum of drugs and anesthetics ordinarily needed for use.

h. A stretcher or carrier shall be provided for returning patient to her own room.

i. The same aseptic technique shall prevail as at any surgical operation. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-117. Equipment for Reception of Newborn Infant

a. A heated bassinet, crib or incubator shall be ready in the delivery room for reception and care of the newborn infant. Provision shall be made for keeping the infant warm and protected from exposure to infection during transit from delivery room to the nursery. Attendants, transporting an infant, shall wear a mask, gown, and head covering. An elevator, when used by an attendant transporting an infant, shall be free of other passengers.

b. There shall be equipment for resuscitation as ordered by the physician. Facilities for the administration of oxygen shall be available.

c. Silver nitrate ampoules for the prevention of ophthalmia of the newborn shall be kept on hand and instillation of silver nitrate shall be done before the infant is removed from the delivery room.

d. Every infant shall be marked for identification before it is removed from the delivery room by one of the reliable methods in common use, such as tape or name beads. Information shall be sufficient to identify infant with one mother, and one only. If written tags are used, ink shall be waterproof. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-118. Provisions for Postpartum Mothers

The patient shall be under close supervision of a professional nurse or physician during the time when she is recovering from the effects of anesthesia and for at least one hour to observe the fundus and to report to the physician any symptoms of hemorrhage. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-119. Provisions for Infants

a. A nursery shall be provided for the care of newborn infants and shall not be used for any other purpose.

b. Rooms in which rooming-in is practiced shall not be considered nurseries unless they contain more than two infants, in which case all requirements for an infant nursery shall apply.

c. Any newborn infant suspected of or having infection or any infant born outside of the hospital or who has been exposed to actual or potential infection shall be placed in a suspect nursery or room that can be used as a suspect nursery. Such infants shall be kept in the suspect nursery until either suspicions are proved unwarranted or a diagnosis of disease is made. Responsibility and authority for transfer of an infant from the main nursery to the suspect nursery shall be vested primarily in the nurse in charge of the main nursery at any given time. The suspect nursery shall be staffed by nurses who do not work in the main nursery, and strict isolation technique shall be observed there.

d. Immediate segregation and isolation of all infants with diagnosed infections such as diarrhea, infectious dermatitis, or respiratory infections shall be provided in a separate room off the obstetrical floor or outside the maternity unit. All equipment shall be kept completely separate for each such infant.

e. No persons other than physicians, nurses, technicians, and individuals responsible for maintenance shall be admitted to any room used as a nursery. Everyone not working in the nursery exclusively shall put on a fresh cap, gown, and mask, and shall wash hands, before entering.

f. Dry sweeping and dusting in nurseries is prohibited. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-120. Nursery Furnishing and Equipment

a. A separate crib or basket shall be provided for each infant. Cribs shall have firm mattresses, covered with waterproof sheeting and washable pads. Washable inside linings must be provided to obviate danger of injury to infants from crib bars and as a preventive measure against the transmission of infection except when one-piece plastic bassinets are provided. Freshly laundered linings, blankets, and linen shall be furnished for each new occupant. Openings in sides of bassinets shall not be large enough to allow passage of infant's head. The use of racks or bassinet stands which hold more than one bassinet is prohibited.

b. The use of common bathing or dressing tables is prohibited as a preventive measure against transmission of infection. All bathing, diaper changing,



and treatments shall be carried out in the bassinet or on its separate shelf or drawer.

c. One rectal thermometer shall be provided for each infant. Thermometers shall be kept in antiseptic solution in individual containers.

d. Individual bottles of oil (if oil is used), individual wash basins (if daily baths are given), and an individual 24-hour supply of linen shall be provided for each infant and stored, with the thermometer, in the bassinet stand.

e. Accurate scales shall be provided; the weighing pan shall be freshly covered for each infant.

f. A separate utensil, preferably a self-contained electrical apparatus, shall be provided for warming infant formulas.

g. In each nursery there shall be at least one covered metal container for soiled diapers, with foot control pedal and removable paper or lining which can be disposed of or laundered. In each nursery there shall be at least one linen hamper with removable liner for soiled linen other than diapers.

h. Incubators suitable for the care of premature infants shall be provided in the ratio of at least one incubator to ten bassinets or fraction thereof.

i. If hot-water bags are used, water shall be tested with the hands and they shall be enclosed in a protective covering before being placed in the crib. Electrical heating pads shall not be used in the cribs of infants.

j. A large wall clock, visible from all parts of the nursery, shall be provided. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-122. Preparation of Feedings

a. There shall be a special area for the preparation of milk mixtures, equipped with a sterilizer, sink, handwashing facilities, and storage space. This area shall at least be out of the line of traffic, and is preferably enclosed as a separate room.

b. There shall be a refrigerator of a size in keeping with capacity of nursery, equipped with a thermometer, capable of holding a 24-hour supply of individually bottled milk mixtures. A temperature of 40-45 degrees Fahrenheit shall be maintained in it. It shall be used for formulas exclusively.

c. Bottles, caps, and utensils used in the preparation of milk mixtures shall be thoroughly washed and rinsed before each use. Feeding equipment from infected or suspected infants shall be sterilized before being returned to the milk room.

d. Nipples shall be thoroughly washed, rinsed, and sterilized by boiling before each use.

e. All formulas and fluids offered to newborn infants (or other infants under the age of one year) shall be prepared by the following method,

known as terminal or post sterilization (for exceptions see section f. below): Milk mixtures and other fluids offered to infants shall be poured into clean individual bottles at the time of preparation. A sterilized nipple shall then be attached to each bottle and covered with a cap of paper, metal or glass so constructed that nipple is completely enclosed. The entire unit shall then be subject to terminal sterilization with steam, under pressure of not less than six pounds (110 degrees Centigrade or 230 degrees Fahrenheit) for not less than ten minutes, or by flowing steam at a temperature of not less than 100 degrees Centigrade or 212 degrees Fahrenheit for not less than thirty minutes. The temperature of the formula or fluid, as determined by periodic testing, shall be not less than 93 degrees Centigrade or 200 degrees Fahrenheit at the end of the heating period.

f. Lactic acid milk, protein SMA, Nutramigen, formulas containing soybean products, meat, cereal or lactic acid, and fruit juices, which are altered by this process, may be offered without such terminal heating but shall be prepared with and stored in presterilized equipment.

g. Bottles shall not be propped in bassinets when infants are fed in the nursery. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-122. Nursery Nursing Service

a. Nursing care shall be provided day and night in the ratio of at least one nurse for each twelve infants (preferably eight).

b. Auxiliary workers shall not work in the nursery except under the close and immediate supervision of a registered nurse in the maternity division. (Authorized by G. S. 1949, 65-431; effective September 1, 1953.)

#### 28-34-123. Clothing and Linen

a. Infants' clothing shall be furnished by the hospital. Freshly laundered or disposable diapers only shall be used, and shall be available in the necessary quantity. When the infant is discharged, clothing furnished by its parents shall not be brought into the nursery.

b. Diapers shall not be washed by nurses assigned to the nursery. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-124. Pediatrics

In hospitals not maintaining a pediatric service, children shall not be placed in the newborn nursery. Hospitals maintaining pediatric service shall provide facilities for the care of children, apart from the services for adult patients and from the newborn nursing service, and there shall be proper facilities and procedures for the isolation of children with infectious, contagious or communicable conditions.

a. Hospitals providing pediatric care shall be evaluated and approved on the basis of the size of the service and competency of personnel, facilities, policies, and procedure. A hospital providing care for children shall have registered nursing personnel commensurate with the needs of the hospital and the size of the service.

b. The newborn nursery and the pediatric department shall not be used for boarding care of illegitimate, dependent, neglected or defective children. If the hospital is, at the end of the period for which progressive medical care is indicated, unable to properly discharge such infants, their presence shall be reported to the Division of Child Welfare Service of the State Department of Social Welfare for suitable action by such department. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

i. A patient being admitted in a condition of abortion shall furnish a signed statement acknowledging her condition and certifying that the abortion was not induced in the hospital or by a member of the hospital medical staff.

j. To reduce the electrostatic spark hazard, physicians, nurses or persons working in the operating rooms and delivery rooms shall be properly attired in scrub gowns, operating gowns or operating suits, and conductive footwear. Street clothes or woolen, nylon or rayon attire is prohibited.

k. Smoking shall not be permitted in operating and delivery suites, including corridors within the suites. (Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

#### 28-34-128. Anesthetic Service

a. All equipment for the administration of anesthetics shall be readily available, kept clean, maintained in good repair and shall comply with the National Fire Protection Association standards.

b. There shall be provided a suction apparatus and resuscitation apparatus and equipment for the administration of oxygen.

c. In hospitals not providing an organized anesthetic service, all anesthetics shall be given under the supervision of a competent staff physician.

d. No anesthetic shall, for any reason, surgical or otherwise, be administered, except in extreme emergencies, until the patient has had a preliminary physical examination, including necessary laboratory procedures.

e. After the administration of an anesthetic, the patient shall be under the constant observation of an individual specifically assigned to that duty until the patient has regained consciousness or until the effects of the anesthetic have disappeared.

(Authorized by G.S. 1949, 65-431; Effective September 1, 1953.)

c. The nursing department shall consist of nursing units which are oriented so that each patient's room receives sunlight during some part of the day. The nursing units shall have convenient relationship with the surgical and obstetrical suites, adjunct diagnostic and treatment facilities, and service facilities. Patients' rooms, including labor rooms, shall be outside rooms with outside windows for natural light and ventilation and shall communicate directly with a corridor. No patients' room shall be below grade. Each bedroom shall have a lavatory with non-manual faucets. Separation of medical, surgical, and obstetrical patients shall be provided in small hospitals that do not have separate nursing units for these patients. Room areas allow 100 sq. ft. in single bed rooms and 80 sq. ft. per bed in multi-bed rooms, with at least 3 feet between beds and a maximum of 4 beds. Screens shall be provided for privacy in multi-bed rooms. Each nursing unit shall be limited to approximately 35 beds and shall have the following auxiliary facilities as required: nurses' station; utility room; patients' toilet facilities; bath-room; bedpan facilities; floor pantry; linen and supply storage; janitor's closet; nurses' toilet room; and isolation suite with sub-utility room unless contagious disease nursing unit is available elsewhere in the hospital.

d. Nursery rooms shall be outside rooms with windows for natural light and shall have no direct communication with a public corridor or other non-nursery space. Each nursery room and each examination and work room shall be equipped with a lavatory with knee or foot-controlled faucets. An examination and work room, which shall communicate with a corridor, shall be provided for each single nursery unit or for each two full term nursery units. View windows shall be provided between the corridor and nursery rooms and between the nursery rooms and their respective examination and work rooms. The room area for a full term nursery shall allow a minimum of 24 sq. ft. per bassinet with a maximum of 12 bassinets. A separate premature nursery with an examination and work room will be required in hospitals with 25 or more maternity beds and shall have a minimum of 30 sq. ft. per bassinet with a maximum of 6 bassinets. In hospitals with an annual average number of births in excess of 100, a suspect nursery and examination and work room shall be provided and shall have 40 sq. ft. per bassinet with a maximum of 6 bassinets. The number of bassinets in smaller suspect nurseries shall equal approximately 10 per cent of the full term bassinets. A formula

room shall be provided either in the nursery area or the kitchen area. Facilities shall be provided in the formula room for washing, rinsing, and filling bottles and for terminal sterilization unless the central sterilizing facility is to be used. Refrigerators shall be provided as required for storage of formula in the nursery and formula room areas.

f. Central sterilizing facilities shall be provided as required by the size of the hospital and shall consist of sterilizing and sterile storage space and an adjoining room for storage of unsterile supplies.

g. The obstetrical department shall be located to prevent traffic through it to any other part of the hospital and shall be completely separate from the surgical department. The facilities shall consist of suitable delivery room or rooms, labor room or rooms, and the following auxiliary facilities: scrub-up space and sink with knee or foot-controlled faucets; clean-up or utility room; janitor's closet; and sub-sterilizing room if necessary to supplement the central sterilizing facilities. In hospitals of 100 or more beds, the following additional facilities shall be provided as required: father's waiting room; supervisor's station; doctors' locker room with toilet; nurses' locker room with toilet; sterile supply storage; and stretcher alcove. A patient's bedroom may be used as a labor room in hospitals of 15 beds or less.

h. The emergency department shall be separate from the surgical and obstetrical departments and shall have a separate entrance from the ambulance court or service court. Minimum facilities shall consist of an accident room with scrub-up sink with knee or foot-controlled faucets and an adjacent toilet room.

#### 28-34-202. Nurses' Call System

b. Operating, delivery, emergency, and recovery rooms, rooms used for children, and nurseries, shall have one emergency call station each for use of the nurse. Emergency call stations for use of patients shall be installed in patients' toilet and bath rooms.

#### 28-34-178. Ventilation

c. Operating rooms, delivery rooms, and nurseries shall be provided with supply and exhaust ventilating systems which will change the air at least eight times an hour. No recirculation of air will be permitted in these rooms. The air supply inlet in operating and delivery rooms shall be located near the ceiling and the exhaust outlet near the floor, and the system and equipment shall conform with the recommendations of the National

Fire Protection Association for safe practice for hospital operating rooms.

f. If air conditioning is to be provided, first consideration shall be given to its installation in the operating, delivery, and nursery rooms. Air conditioning systems for operating and delivery rooms shall conform with the recommendations of the National Fire Protection Association for safe practice for hospital operating rooms.

#### 28-34-199. Lighting Outlets and Switches

c. Operating and delivery rooms shall have general illumination and special lights for the tables, each on an independent circuit. Each operating room shall have an x-ray film illuminator. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

#### 28-34-201. Explosion-Proof Installations and Ungrounded Circuits

a. All electrical installations and equipment in operating, delivery, emergency, anesthesia induction rooms, and anesthetic storerooms shall be explosion-proof, if less than 5 feet above the floor, as recommended by the National Fire Protection Association.

b. The installation of ungrounded circuits and the grounding of equipment in anesthetizing and anesthetic storage locations shall comply with the recommendations of the National Fire Protection Association. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

#### 28-34-203. Emergency Lighting

a. Emergency lighting shall be provided for exits, stairs, patient corridors, nurseries, and operating and delivery rooms. Battery operated lamps or flashlights shall be provided as a minimum for emergency lighting in existing hospitals which do not have an emergency power supply and in other medical facilities buildings. Battery operated lamps and flashlights for use in hospital operating and delivery rooms shall have vapor-proof switches.

c. The use of an open flame type of light is prohibited in operating and delivery rooms and other anesthetizing locations. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

#### 28-34-204. Clock System

A clock system shall be complete with a master clock and time indicator clocks in administrative offices, lobby, and work areas as required. Clocks shall be provided in the nurses' station, operating and delivery rooms, and nursery. (Authorized by G.S. 1949, 65-431; Effective October 1, 1958.)

#### 28-34-208. Refrigerators

b. Refrigerators of adequate capacity shall be



provided in all areas where needed, such as kitchens, floor pantries, utility rooms, formula room, nursery workroom, drug room, and blood bank. A minimum of two separate sections or boxes shall be provided in the main kitchen, one for meats and dairy products and one for general storage.

## **F. Communicable and Other Reportable Diseases**

### **1. LAWS**

65-117. *Report by physician of dangerous diseases, and placard of premises.* Whenever any physician shall know or have reason to believe that any person whom he has been called to visit, or any person sick within his knowledge without the care of a physician, is sick with or has died of any infectious, contagious or communicable disease, he shall immediately give notice thereof to the board of health or health officer having jurisdiction over the area. In the case of those diseases required to be placarded, the health officer shall at once fasten or cause to be fastened a placard not less than twelve inches square, with the name of the disease written or printed thereon in large characters, upon the front door or other conspicuous part of the building wherein the sickness prevails; such placard to be maintained until such time as the health officer, or in his absence, the attending physician, acting under the authority and approval of the health officer, is satisfied that the premises are safe for the resumption of normal use. [L. 1901, ch. 285, § 1; Feb. 15; R. S. 1923, § 65-117; G. S. 1949, § 65-117; L. 1957, ch. 332, § 1; June 29.]

65-118. *Reporting to local health authority as to communicable diseases.* When no physician is in attendance, it shall be the duty of the head of the household or the individual in charge of any other place or premise where persons reside, when any member of the household or any one residing on the premises is suffering from a disease presumably communicable or suspected of being a communicable disease to report immediately to the local health authority all the facts relating to the case, together with the name and address of the person suspected of having said communicable disease. [G. S. 1949, § 65-118; L. 1953, ch. 283, § 1; July 1.]

### **2. REGULATIONS**

#### **a. Epidemic Diarrhea of Newborn.**

"Any infant who passes three loose stools in one 24 hour period, or passes loose stools on two successive days shall be considered suspicious for diarrhea of the newborn and should be isolated in a suspect nursery unless it is entirely breast fed and shows no other evidence of ill health. If 3 such cases develop from any nursery within a period of two weeks, an epidemic of diarrhea of the newborn shall be considered to be present, and im-

mediate notice shall be given by telephone either to the Division of Maternal and Child Health of the State Board of Health, or to the local Health Officer if the county maintains a full-time local health unit."

(This regulation was revoked through an oversight and will be reinstated by January, 1959.)

#### **b. Ophthalmia Neonatorum.**

According to the Preventable Diseases regulations, Ophthalmia Neonatorum is also a reportable disease.

c. The following regulations were approved at the Kansas State Board of Health meeting on April 18, 1958:

1. "Require the reporting of 'Acute, severe, staphylococcal infections occurring in household where one or more persons have been hospitalized in the six weeks period preceding the onset of the infection, or occurring in the maternity units of hospitals or maternity homes. When two or more cases of such infection develop within a period of 30 days among either recently delivered mothers or newborn babies in any hospital, a potential epidemic of staphylococcal disease shall be considered to exist and the hospital administrator shall report by telephone to the Kansas State Board of Health, or to the local health officer if the county maintains an organized local health unit, with a full-time director.'"

2. "The capacity of each hospital nursery shall be established by the State Board of Health on the basis of its rules and regulations, and this capacity shall be posted on the view window of the hospital nursery at eye-level in the form of a notice bearing the legend: 'Notice. Occupancy of this nursery by more than (capacity) infants is dangerous and contrary to regulations. By order of the Kansas State Board of Health.'"

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Many patients with cancer could be "alive five years after diagnosis" if the disease were detected and treated earlier. Striking evidence pointing to this conclusion is presented in the publication *Patterns of Disease*, prepared by Parke, Davis and Company for the medical profession.

Uterine cancer which kills 16,000 women annually is almost 100 per cent curable if detected early enough, says *Patterns*. The survival rate for cancer of the breast, one of the commonest forms of cancer in women, could be raised from its present 46 per cent to 81 per cent, and of cancer of the lung, from 4 per cent to 34 per cent.

## Maternal Mortality Report

A 26-year-old white para II, gravida III first reported for care in the fourth month of her final pregnancy. The previous pregnancies had been normal except for thrombophlebitis following the second pregnancy. The patient did not receive a complete examination or blood count until the third prenatal visit but blood grouping, urinalysis, and serology were determined on the first visit. Her prenatal care was consistent. She gained 23 pounds during her pregnancy.

The patient fell approximately one week before term and had some vaginal bleeding following this episode. She was not hospitalized at this time. She continued to bleed intermittently, however, and nine days after the fall she was hospitalized for observation and discharged subsequently as "improved."

The patient went into labor spontaneously three days later, making rapid progress with spontaneous rupture of the membranes, and she was thought to be ready for delivery some three hours and fifteen minutes after the onset of labor. Attempts to deliver the baby occupied the next four hours. When the head failed to descend in spite of good contractions, the physician applied low forceps without success. He augmented his efforts with Pitocin by intravenous drip after two hours of effort and for two more hours continued the attempt to complete the delivery.

During this time there was slow, steady bleeding. At the end of this period of time, the physician felt he was dealing with a cephalopelvic disproportion due to a hydrocephalic baby, and the patient was showing signs of shock. The physician telephoned a prominent obstetrician in the east and was advised to perform a destructive procedure. This, however, was not carried out. During the ensuing hours, the patient continued to bleed and remained in shock. Blood was requested from another community 30 miles distant. The attending physician consulted a general surgeon by telephone and it was recommended that a section be performed. Further unsuccessful attempts to deliver the baby were made, and when the blood and the consultant arrived a total of ten hours had passed. A classical Cesarean section was carried out under nitrous oxide and ether, the procedure taking two hours. Despite the introduction of three pints of blood, the patient did not improve and her heart stopped during surgery. Cardiac massage was carried out without success.

*Committee opinion:* The committee felt that errors in judgment were displayed in this case: (1) It was not reasonable to exert effort to deliver the patient from below over such an extensive period of time in the face of a deteriorating condition and repeated failure; (2) Regular consultation with obstetricians more readily available would have been more rational; (3) The time required for the Cesarean section was longer than reasonable; (4) Better care could have been provided by transferral to better hospital facilities or earlier consultant assistance.

*Classification:* Obstetric death, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

## PRESIDENT'S PAGE

DEAR DOCTOR:

Seldom has a letter been as heartwarming as is this. I wanted to share it with you.

*Fraternally,*

A handwritten signature in cursive script that reads "Thomas P. Butcher M.D." The signature is fluid and elegant, with a large initial 'T' and a long, sweeping underline.

*President*

### **The University of Kansas Lawrence**

Office of the Chancellor

September 15, 1958

DEAR OLIVER:

When you were in my office a few days ago, discussing the rural health conference and the annual and centennial meeting of the Kansas Medical Society, I told you that I could not come to the annual meeting because of a conflict with the meeting of the National Association of State Universities, on whose Executive Committee I serve. It is still a fact that this conflict exists and it is also still a fact that I have a heavy obligation to be present.

The evening of the day of your visit was one of those rare ones when I could sit quietly in my home after dinner, listen to some chamber music, do a little reading, but mainly speculate. It suddenly flashed into my mind that in typical 20th century fashion all perspective had left me; I had gotten so preoccupied with the trees that I had forgotten the forest and the ground from which the trees had sprung. I spent many years of my life in becoming a physician and proudly consider myself that, even now, above everything else. I came back to Kansas, sensed a need, and hoped to do something about it. Everywhere I turned for assistance I found nothing but enlightened support and even dedication, and most of this I found within the Kansas Medical Society.

I suppose much of what little I have achieved since is directly related to those exciting and wonderful days between 1948 and 1951 where great ideas were discussed with wonderful and loyal people, and out of which period has come our rural health effort, much of the present vigor of our Medical School, and the great and significant advances in the care of the mentally ill in Kansas. And now many of these people propose to gather at a centennial celebration and I, who owe them so much, had planned not to be with them (albeit with good reason).

In short, I propose in early May to be here where I belong, namely at the centennial meeting of the Kansas Medical Society and I shall do what I can to make it a success. Of course, most of all, I shall enjoy visiting and reminiscing with all of you to whom I shall forever owe so much.

*Sincerely,*

/s/ FRANKLIN D. MURPHY, *Chancellor*



## EDITORIAL COMMENT

### Rueben Dalbec Joins A.M.A.

It is with sincere regret that the Council accepted the resignation of Rueben Dalbec, executive assistant of the Kansas Medical Society for the past six years. On November 15 he will leave to become field representative for the American Medical Association, a position of great importance and responsibility.

The Kansas Medical Society will miss Rueben's exceptional abilities and his friendly cooperation but welcomes the opportunity that is opened here for him to widen his sphere of influence.

Kansas feels it is a compliment that this position should go to a young man from this Society as we were complimented recently in the fact that Jim Reed, former editor of the *Topeka Daily Capital*, was selected to edit the excellent new A.M.A. newspaper.

Good luck, Rueben. We know your work will bring credit to the A.M.A. just as it has to the Kansas Medical Society during the past six years.

### Sociology Textbooks

Dr. George S. Benson, president of Harding College, distributes a widely read letter on various phases of democracy. In a recent issue he recommends a book entitled *The Claims of Sociology: A Critique of Textbooks* by A. H. Hobbs, professor of sociology at the University of Pennsylvania.

In his book Dr. Hobbs evaluated 83 textbooks in sociology that are in wide use among the high schools and colleges of America. He finds a shocking situation to exist with reference to the ideology these texts express.

Dr. Benson says this book finds only 11 sociology textbooks that state spiritual guidance is a valid function of religion and 33 definitely advocate the opposite view. Fifty statements in 41 texts contain critical comments upon traditional religion. The great majority of these books teach the high school and college youth of America that

1. The outstanding characteristic of the American economic system is the maldistribution of wealth and that social planning by the government is the only way in which people can gain security.

2. Social controls in family, religious, and education fields are irrational and need to be revised.

3. Religion should discard mysticism, the supernatural, ritual, and tradition and concentrate upon social reform.

4. The government owes its subjects security, equality, health, and happiness and that increased governmental controls over business and industry are

the only solution for current problems in these fields.

The editorial pages of this JOURNAL have long decried the apparent disinterest of physicians as parents in what their children are taught in the schools. Marked errors in the field of hygiene and physiology have previously been cited. Here is another example, quite certainly not as striking in Kansas as elsewhere, of textbook information that is frankly not only contrary to fact but also in opposition to the ideology and the beliefs upon which this nation was founded.

The Kansas Medical Society has a committee on School Health of which Dr. Conrad M. Barnes of Seneca is the chairman. Through its efforts a state school health council has been organized. While the committee is interested in all phases of school health, not the least among its interests is the question of what textbooks used in Kansas schools are teaching about health.

Kansas may well be proud of its record as contrasted with certain other areas in regard to the care that has been given the subject. But problems exist here also which the committee and Council propose to resolve. Their work should be encouraged by all physicians, but of even greater importance is the need for every parent to investigate this personally with respect to his child. Only then can America be sure its future citizens will understand what its founders believed to be worthy of their sacrifices. Only then can the future of democracy be assured.

### American Board of Abdominal Surgery

Numerous Kansas physicians have been invited to become members of the founders' group of the newly announced "American Board of Abdominal Surgery." The number of inquiries concerning the status of this organization prompted the Kansas Medical Society to make certain investigations.

In a statement prepared by this new organization, the opinion is expressed that the general surgeon has suffered a loss each time a new surgical board is organized until now all that remains for his domain is the abdominal cavity. Hence a "board" to preempt that area of surgical management for the general surgeon.

Your Society has no desire to engage in that discussion because any viewpoint would quite obviously reflect the opinion of the author. Certain specialty societies came into being under circumstances not very dissimilar to the present situation and have, in the course of years, gained considerable professional acceptance. The principles and qualifications for membership are generally in line with those of established boards although examination is apparently not (always) required for membership. Since "Some applicants may be required to take a written and/or an

oral examination," it apparently is not even a "board" in the usual meaning.

Other specialty organizations do not agree that a board can today spring into immediate acceptance by merely declaring its existence. The Kansas Medical Society inquired of the American Board of Surgery, the American College of Surgeons, and of the Council on Medical Education and Hospitals of the American Medical Association concerning this question and received a similar reply from each office.

To become a recognized board listed in the *Directory of Medical Specialists*, the group must have passed a certain investigation. This process may somewhat retard the organization, but the 19 or some such number of boards currently listed in this directory have somehow satisfied whatever was necessary.

Replies to our inquiry were in accord. Each letter stated that the American Board of Abdominal Surgery had made no formal request for an investigation and had not applied for a listing in the directory even though it had been advised of the steps that would be necessary in this regard.

Therefore, this "board," for the present at least, is not recognized by the groups above named. Neither the American Board of Abdominal Surgery nor its members will be listed in the *Directory of Medical Specialists*, but what such membership may or may not accomplish for the individual physician now or in the future cannot be predicted.

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### Federal Spending

A few weeks ago the Washington office of the American Medical Association distributed its annual summary of the status of medical legislation as the 85th Congress adjourned. This year the report required 32 mimeographed pages to make the briefest possible report. A few thoughts come to mind, not original, but insistent enough to prompt them to be recorded.

First is the increasing interest of the Congress in legislation affecting health. In this recent summary are recorded 704 bills and resolutions on health or about one in 30 upon all subjects. Ten years ago it was barely one-fourth this number.

Second is the well known fact that certain major measures which did not pass will be reintroduced next year and that exceptional effort will be made to pass legislation which, in the minds of all thinking physicians, is frankly not in the best public interest.

Third is the fact that the debt limit was raised to 288 billion, the highest figure to date. Additional spending was reflected in many areas to a greater degree than was the 10 per cent increase of expenditures for defense.

Fourth, this was the most expensive non-war Con-

gress in history, appropriating for one year almost double the amount spent ten years ago.

Fifth is the contemplation of increased social security benefits granted this year which will cost the employee who earns \$4,800 or more and his employer an increase from \$94.50 at present to \$120 in 1959.

Sixth is a flight of fancy upon the ominous fact that the federal government is spending every hour of every day a sum of 13 billions of dollars. This is at a rate of \$216,666 per minute and \$3,612 a second.

Seventh comes the sobering reflection of where we are going and what can be done about it.

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### Course on Fluid and Electrolytes

A postgraduate course in fluid and electrolyte balance will be conducted in Wichita on February 7, 8, and 9, 1959, by Dr. Belding H. Scribner, associate professor of medicine at the University of Washington. Dr. Scribner, who has conducted numerous courses on this subject in this country and abroad, will be assisted by two associates from the University of Washington to insure that all phases of the problem will be covered.

This preliminary announcement is made so that physicians interested in attending will know the dates. Further details of arrangements and tuition will be announced later by the Education Committee of the Midwest Medical Research Foundation. All licensed physicians will be invited to enroll.

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### A.M.A. Clinical Session in Minneapolis

More than 3,000 physicians are expected to attend the American Medical Association's 12th clinical meeting, December 2-5, in Minneapolis. The scientific portion of the program will be presented in Minneapolis Auditorium. The House of Delegates will meet at the Leamington Hotel.

Approximately 200 physicians will participate in the scientific program, 35 medical motion pictures will be shown, and a trans-Atlantic conference between A.M.A. members in Minneapolis and British Medical Association members in Southampton, England, will be held. Closed circuit colored television will be shown, as in the past, through Smith, Kline and French Laboratories.

The general practitioner of the year will be named at the opening session of the House of Delegates on December 2.

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Make hotel reservations now for the Kansas Medical Society's centennial session, Topeka, May 3-7, 1959.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

For many years a number of students of government have been searching for some way of checking the growth of the federal bureaucracy and returning certain functions to the states.

Two particularly vexing problems are involved. Because the federal government has moved into so many taxation areas, states complain that even if they wanted to regain control over certain programs, they would have no way of paying for them. Also, a fool-proof mechanism would have to be devised to insure that the programs didn't break down during the transition and that the states would in fact keep up the activities after U. S. dollars stopped coming.

If the administrative details could be worked out, and if Congress would agree to reverse the trend, a number of U. S. Public Health Service grants programs presumably could be turned over to the states.

President Eisenhower is deeply interested in attempting to turn the tide, and last year the administration came up with a concrete proposal. It was to make the states completely responsible for the water pollution control operation (\$50 million annually in U. S. grants) and vocational education (\$35 million a year). So the state would have money to finance the work, the U. S. would drop part of its tax on telephone service, inviting the states to levy their own tax.

Congress was cool to the idea. Besides, after giving it more consideration, the then Secretary Folsom of HEW decided it wouldn't work because the low-income states couldn't realize enough from the telephone tax to meet the extra expenses.

But the administration hasn't given up hope. Supported by the federal-state joint action committee, Secretary Flemming (Folsom's successor) is proposing a new method, one that he thinks will meet the problem of the low income states.

He would shift to the states the same two programs—water pollution control and vocational education. At the same time the U. S. would forego 30 per cent of the present tax it imposes on telephone service and permit the states to levy this amount. In addition, to take care of the poor states the U. S. would allocate among states an amount equal to 10 per cent of the present telephone tax, distributing relatively larger shares to the low per capita income states.

In dollars, as explained by Secretary Flemming, the states would be losing \$85 million in U. S. grants, but they would have an opportunity to collect a total of about \$109 million on telephone service and receive \$36 million in the new grant arrangement.

In announcing that the administration was going to try again to have this idea adopted, Mr. Flemming emphasized that both programs were of great value and shouldn't be allowed to "drop through the cracks in the floor" during the period of transition. He noted that under his proposal the U. S. could step in and make a state use the money for the specific purpose if it showed an inclination to collect the tax but spend the money somewhere else.

The question now is whether Congress will show any enthusiasm over the plan. At any rate, it will be opposed vigorously by the telephone industry and vocational education interests. The latter are fearful that their programs might suffer under all-state operation.

### Notes

HEW is giving careful study to the Bayne-Jones report which proposed a doubling of U. S. medical research spending and early construction of 14 to 20 medical schools. Secretary Flemming told a press conference that final estimates of the cost of carrying out some of the report's proposals are due to be finished in December.

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Social Security Administration reports a sharp rise in volume of appeals from applicants denied social security benefits, mostly under the disability section enacted two years ago. The administration's staff of referees has been increased four-fold in two years to handle the work load. Three times as many hearings are held on disability claims as on all others combined.

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With President Eisenhower's appointment of General Elwood R. Quesada as administrator of the new Federal Aviation Agency, the American Medical Association is renewing its plea for an Office of Civil Aviation Medicine manned by a Civil Air Surgeon.

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Mounting protests from medical and other groups have persuaded the Post Office Department to drop its plan to ban the airmail shipment of etiological disease agents. Airlines felt there was a threat of breakage and possible danger to crews and plane passengers. PHS, the A.M.A. and others argued that proper packaging could control this problem.



# Tumor Conference

## *Carcinoma of the Tongue*

EDITED BY BONITA J. PETERSON, M.D.

Dr. Robinson (Moderator): Malignant tumors of the tongue cause more deaths each year than any other cancer of the head and neck, including neoplasms of the thyroid gland. It has been estimated that cancer of the tongue now accounts for 2-3 per cent of all human cancers. Although carcinoma of the tongue is said to occur much more frequently in men, we have seen many cases in women. Since 1947, 37 of our 116 cases, or nearly 33 per cent, have been women. It is stated that a real change in sex incidence has occurred with a decrease of the ratio from 10:1 in 1925 to 2:1 in 1955. The change is principally due to a decrease in incidence in men, possibly secondary to decreased oral sepsis and syphilis.<sup>2</sup> In one series of 245 cases<sup>3</sup> more than half of the primary lesions on and about the tongue involved both the tongue and the floor of the mouth when first recognized.

Mr. Janzen (Junior Medical Student): This 83-year-old white woman had a hemiglossectomy here in September, 1957, for squamous cell carcinoma of the tongue. Four years previously she began having mild dysphagia and soreness of her tongue with an enlarging mass on the posterior third. A biopsy of the mass about two years later showed squamous cell carcinoma, and she was treated with radium needles for one week. The mass subsided but recurred, and she was then referred here for further therapy. After the hemiglossectomy there was no evidence of recurrence or metastasis until March, 1958, when a rapidly enlarging, 3 x 5 cm., oval, firm mass was noted in the region of the middle third of the sterno-mastoid muscle. The mass was fixed to the underlying soft tissues. A chest x-ray and other laboratory findings were within normal limits.

Dr. Santa Romana: We thought this case might be inoperable because of the fixation of the mass to the underlying soft tissues. Our neck dissection was indeed complicated by involvement of the adventitia of the common carotid artery. We nevertheless did the best extirpation we could, stripping out all the tissues from the clavicle to the border of the trapezius, including part of the thyroid gland,

the deep cervical fascia, the internal jugular vein, the sterno-mastoid, omohyoid and digastric muscles, the submaxillary gland, and all soft tissues to the lower border of the mandible and base of the skull.

Dr. Boley: The mass of tumor we received included thyroid gland at one margin invaded by tumor, as seen in the photomicrograph (Figure 1). We may, therefore, reasonably assume that some tumor was left behind. The tumor consists of strands and nests of poorly differentiated squamous cells in a dense fibrous tissue stroma. It is probable that metastasis was primarily to lymph nodes with direct extension from them into muscle, thyroid, and perhaps other lymph nodes. The original tumor of the tongue was better differentiated in some areas but also showed foci of poor differentiation. Carcinomas of the tongue tend to be neither very benign nor highly malignant with the incidence of metastasis distinctly lower among the better differentiated tumors.<sup>3</sup> As might be expected, neoplasms of the posterior third of the tongue have a higher potential

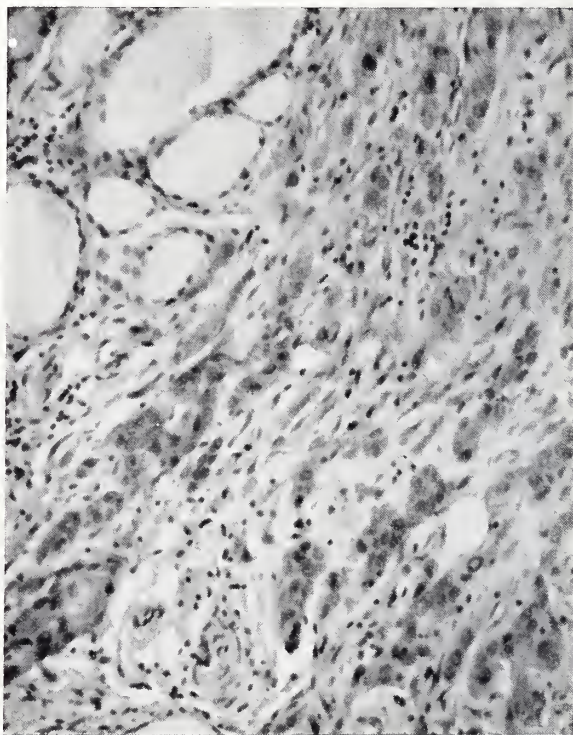


Figure 1. Invasion of the thyroid gland by squamous cell carcinoma metastatic from the tongue. (x230)

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service and from the Kansas Division of the American Cancer Society. Dr. Peterson is a Trainee of the National Cancer Institute.

for cervical lymph node metastases. In about 25 per cent of cases of carcinoma of the tongue, bilateral metastases are present.

Dr. Robinson: In this case we were confronted originally with a tumor which had already been unsuccessfully treated by radium implantation. We elected to do only a hemiglossectomy at first, since the patient's age and general condition did not seem to warrant a more extensive procedure without evidence of metastases to cervical nodes.

Elective neck dissection for carcinoma of the tongue is still a matter of controversy. Statistically it has been shown that metastatic nodes will develop in about 40 per cent of patients without adenopathy at the time of treatment of the primary lesion.<sup>1</sup> These nodes usually become evident within six months. This fact may be considered indication for elective neck dissection; however, local recurrence often makes the elective procedure useless. During follow-up visits to check the status of the treated primary lesion there is ample opportunity to detect any cervical lymph node enlargement and to proceed then with radical neck dissection.<sup>4</sup>

In the present case the primary lesion has thus far been controlled, but undoubtedly there is residual tumor in the neck, thus making postoperative radiotherapy desirable.

Dr. Tice: We cannot destroy metastatic carcinoma in cervical nodes from the tongue or lip, but we can irradiate to keep metastases in check. Radium needles placed into cervical nodes may control metastatic carcinoma, but neck dissection is a better procedure for proved metastatic tumor of this kind. In an older patient like this, our depression of the tumor cells by radiotherapy may allow her to outlive her carcinoma. We plan to give 3000 r, which should produce only a moderate skin reaction. A larger dose, such as 4000-5000 r, might produce ulceration of the skin in two or three months.

Student: Does the fact that this patient has received previous radium therapy influence your decision to give radiotherapy now?

Dr. Tice: When a patient has had previous radium therapy, anyone is hesitant to give further radiation to the same area, especially when the exact amount and placement of the needles are unknown. In this case, however, the previous therapy was directed toward the primary lesion and we will be treating the metastases in a different area.

Dr. Robinson: The metastases from carcinoma of the tongue are confined to regional cervical lymph nodes in almost 90 per cent of the cases. For this reason it might be hoped that involvement of regional lymph nodes would not prove so discouraging as it is with cancer elsewhere in the body. Unfortunately, here as elsewhere, the finding of metas-

tases in the neck at the time of diagnosis alters the prognosis significantly. In addition, any malignancy near the midline has a poorer prognosis because of the increased possibility of metastasis to both sides.

It has been shown that in most cases, palliative treatment does not prolong survival time. On the other hand, in cancer of the tongue, the five-year "cure" rate is more meaningful than it is for many other maglignant neoplasms. The ultimate outcome of over 95 per cent of all carcinomas of the tongue is apparent within five years of the onset of the symptoms.<sup>3</sup>

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## Annual Meeting of Cancer Society

Dr. Larry E. Vin Zant, Wichita, was elected president of the Kansas Division, American Cancer Society, at the organization's annual meeting in Wichita, October 3-5. Other officers are: Miss Georgiana Smurthwaite, Manhattan, vice-president; Mrs. William F. Hansen, Altoona, secretary; Mr. Arthur H. Saville, Topeka, treasurer, and Mr. T. M. Murrell, Topeka, chairman of Executive Committee.

The American Cancer Society, represented by Mr. Mefford R. Runyon, executive vice-president of the national office, presented to the Kansas Division a citation for the "excellence and completeness of its volunteer procedural manuals."

Virologists from eight foreign nations are spending nine weeks in this country this fall studying polio diagnostic techniques and vaccine production and control under the World Health Organization's fellowship program. Their itinerary includes work at Communicable Disease Center Laboratories in Montgomery and Atlanta, the Institute of Microbiology Polio Laboratory in Montreal, and the plants of three pharmaceutical companies producing vaccine in Detroit and Indianapolis.

The virologists, each outstanding in his own country, come from the U.S.S.R., Chile, Egypt, Nigeria, Poland, Lebanon, Austria, and French Equatorial Africa.



# The Adenoviruses

## *A Review of the Literature and Assessment of Findings*

SAM PETRIE, M.D., *Kansas City, Missouri*

### Introduction

The common cold, acute respiratory disease, exudative nonstreptococcal pharyngitis, and primary atypical pneumonia have been omnipresent sources of human distress for a long time. Until recently, etiology of these upper respiratory infections remained an unsolved problem. Then a group<sup>21</sup> at the National Microbiological Institute and a group at the Johns Hopkins School of Medicine began a collaborative investigation of the etiology of these conditions. They used tissue culture systems of recent surgically removed adenoidal and tonsillar tissue with the hope that they would serve as suitable media for the growth of any viruses that might be present in the respiratory tract. However, through repeated subculturing of these normal tissues, a tissue degenerating agent was found that could be serially transferred in tissue culture. Rowe et al.<sup>32</sup> in 1953 were the first to report this agent to which they gave the name "adenoid degenerating agent."

Huebner and associates<sup>21</sup> gave the name adenoidal-pharyngeal-conjunctival (APC) viruses to the agent they isolated. Then Hilleman and Werner<sup>15</sup> reported the recovery of a new agent from patients with acute respiratory illness at Fort Leonard Wood, Missouri, which was designated as RI-67.

These different names for apparently the same group of agents led to much confusion in terminology. For this reason a meeting of the leading investigators in this field was held in New York City in May 1956<sup>11</sup> for the purpose of establishing a standard nomenclature. The agreement reached was that they were to be called "adenoviruses," and the members of the group were to be designated by serotype numbers. Therefore, this terminology will be used here in referring to the viruses.

The purpose of this paper is to review the literature on this group of viruses with special emphasis on (1) the diseases they cause in man; (2) the treatment, if any, of the above illnesses, and (3) the epidemiology of these viruses.

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This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Petrie is now serving his internship at St. Luke's Hospital, Kansas City, Missouri.

### Properties of the Adenovirus

In the initial isolation of this group of viruses by Rowe et al.<sup>32</sup> in the winter and spring of 1952 and 1953, adenoids were obtained from operations on young children. Tissue culture, using the roller tube technique, of 33 of 53 (62 per cent) of the specimens observed during this period demonstrated destruction progressing to complete destruction of the epithelium in 7-10 days. The growth of the viruses has been found to be limited mainly to tissue cultures in which epithelial cells are present. Tissues that support growth of the adenoviruses are HeLa cells (a stock tissue culture obtained from carcinoma of the cervix), human embryonic tissues, monkey kidney tissues, and human amnion cells. The adenoviruses grow slowly in cultures of fibroblasts. The affected cells show eosinophilic swollen nuclei with questionable basophilic nuclear inclusions.

The size of the adenovirus, as determined by pseudo-velocity sedimentation of the type 4 virus, was established to be about 109 mu. Other estimations of the size of the virus by electron microscopy vary from 70 mu to 120 mu.

Activity of the adenoviruses is easily destroyed by heat (62 degrees for 30 minutes), but they can withstand repeated thawing and freezing without great loss of activity. No loss of activity was noted by Rowe et al.<sup>32</sup> after storage at 3 degrees Centigrade for a week or after three cycles of quick freezing or thawing.

Inoculation of the virus into embryonated eggs, suckling and adult mice, suckling hamsters, guinea pigs, rabbits, rhesus monkeys, and a chimpanzee have failed to produce any disease.

The viruses were found to be resistant to ether, a useful property, making it easier to isolate the virus when specimens were contaminated with fungi or bacteria. They can be filtered through a sintered glass Mandler No. 14 filter with only slight loss of activity.

Antibiotic and chemotherapeutic studies by Huebner et al.<sup>21</sup> showed the virus to be resistant to sulfonamide, penicillin, streptomycin, chlorotetracycline, and oxytetracycline.

Serological studies have demonstrated a soluble complement-fixing antigen common to all types of the adenoviruses which can be produced in tissue



culture fluids from all types of infected cells. For the determination of specific immunologic types, antisera prepared in human volunteers and rabbits have been found to neutralize homologous types but not others.

A colorimetric method of typing the adenoviruses has been described by Lennette et al.<sup>26</sup> which was compared with the neutralization test in monolayer HeLa cell cultures. Of 143 viruses tested by the colorimetric method and neutralization tests, final results were in complete agreement with one exception.

Tissue cultures with adenoviruses have been noted to turn more markedly acid than those of other cultures such as those with polioviruses. Fisher and Ginsberg<sup>13</sup> showed the lowered pH to be due to the accumulation of lactic, pyruvic, acetic, and alpha ketoglutaric acids.

Studies have also been carried out to determine the oncolytic effect of the adenovirus on human cancer. Southern et al.<sup>35</sup> studied the pathogenicity of the type 4 virus in a group of patients with advanced carcinoma. There was no convincing evidence of cancer regression and no evidence of selective localization of virus in cancer tissue.

All bacteriological and pleuropneumonia cultures have been negative on specimens of tissue cultures containing the adenoviruses.

Table I lists some properties of the adenoviruses as described by Huebner et al.<sup>21</sup>

TABLE I

- |   |
|---|
| <ol style="list-style-type: none"> <li>1. Production of unique cytopathogenic changes in:             <ol style="list-style-type: none"> <li>a) human explant cultures (epitheliotropic)</li> <li>b) HeLa cells with acid production</li> <li>c) monkey kidney</li> <li>d) rabbit trachea</li> </ol> </li> <li>2. Apathogenicity for laboratory animals</li> <li>3. Ether resistant</li> <li>4. Filtrable (sintered glass, Mandler)</li> <li>5. Heat labile (56 degrees for 30 minutes)</li> <li>6. Resistant to antibiotics</li> <li>7. Type specific neutralization</li> <li>8. Group specific complement-fixing antigens and antibodies (not type specific)</li> <li>9. Soluble antigen</li> </ol> |
|---|

### Types of Adenoviruses Isolated

Since the original isolation of the adenoviruses, many more types have been demonstrated. Huebner and Rowe<sup>20</sup> in April 1957 mention that there are at least 18 serologically distinct human serotypes with 17 having been given number designations. However, the last cumulative list is that by Solorzana<sup>34</sup> which

was taken from an article by Rowe<sup>30</sup> which lists 14 types, 12 human and 2 simian (see Table II).

### Diseases Produced by the Adenoviruses

#### 1. Acute Respiratory Disease

During World War II the Commission on Acute Respiratory Diseases<sup>9</sup> drew attention to the entity of non-streptococcal pharyngitis or acute respiratory disease (ARD) while studying respiratory illnesses in recruits at Fort Bragg, North Carolina. The illness was characterized by an incubation period of five to six days followed by general malaise, headache, cough, chilliness, and a few nasal symptoms. About one-fifth of the cases showed patchy pulmonary involvement primarily in the lower lobes. Investigators of the commission, Dingle et al.<sup>8</sup> were later able to transmit this acute respiratory disease to volunteers by the inhalation of nebulized bacteria-free filtrates of pooled nasal and pharyngeal washings from infected donors. The agent causing this illness has been proved to be identical with the type 4 adenovirus.

In the winter of 1952 and 1953, Hilleman and Werner<sup>15</sup> observed an epidemic of acute respiratory disease among service personnel at Fort Leonard Wood, Missouri. A virus which they isolated from the throat washings of a patient with pulmonary involvement was called RI-67. Later serological studies of this virus proved it to be type 4 adenovirus. Studies in volunteers by transmission of the virus demonstrated that this disease differed both clinically and immunologically from the common cold and from primary atypical pneumonia when characterized by cold agglutinins. In these cases of primary atypical pneumonia they were able to demonstrate neither a rise in cold agglutinins nor agglutinins against streptococcus M.G. The incubation period and clinical findings in Hilleman's and Werner's cases were similar to those cases observed at Fort Bragg.

Type 4 adenovirus was also isolated from military recruits during an epidemic of acute respiratory infections at the Great Lakes Naval Training Center by Bell et al.<sup>2</sup>

It has been noted that the adenoviruses causing acute respiratory disease affect people in large groups, such as workers in factories and particularly military recruits. Berge<sup>1</sup> recovered types 3, 4, and 7 from military recruits suffering from respiratory illnesses ranging in severity from mild febrile rhinitis to primary atypical pneumonia at Fort Ord, California.

Adenovirus types 1, 2, and 5 are responsible for common febrile pharyngitis in the general population, and more than 50 per cent of infants between the ages of 6 and 11 months of age have been affected by either type 1 or 2 virus, according to Huebner and Rowe.<sup>20</sup>

TABLE II<sup>34</sup>  
DIFFERENT TYPES OF ADENOVIRUSES

<i>Type</i>	<i>Strain Designation</i>	<i>Isolated from</i>	<i>Diagnosis</i>	<i>Isolated by</i>
1	A.D. 71	Adenoid	Hypertrophied adenoids and tonsils	NIH (Rowe et al.)
2	A.D. 6	Adenoid	Hypertrophied adenoids and tonsils	NIH (Rowe et al.)
3	G B	Nasal washing	Common cold volunteers	NIH (Rowe et al.)
4	RI-67	Throat washing	Primary atypical pneumonia	Hilleman and Werner
5	AD-75	Adenoid	Hypertrophied tonsils and adenoids	NIH
6	Ton. 99	Tonsils	Hypertrophied tonsils and adenoids	NIH
7	Gomen	Throat washing	Pharyngitis	Berge, Lennette
8	Trim	Eye swab	Epidemic keratoconjunctivitis	Jawetz et al.
9	Hicks	Stools	Arthritis rheumatoid myelitis	Kibrick, Enders
10	J.J.	Eye swab	Conjunctivitis	NIH
11	Slobitski	Stool	Paralytic polio type I polio also isolated	Kibrick, Enders
12	D.C.	Anal swab	Niemann-Pick disease	NIH
13	S.V. 1	Cynomolgus kidney	Monkey kidney tissue culture	Hull
14	Bertha	Stool	Chimpanzee with mild URD	Sabin and NIH

The clinical features in Table III were observed by Hilleman and Werner<sup>16</sup> in 33 patients with adenovirus type 4 infection.

As can be seen from the listed symptoms, the clinical condition of acute respiratory disease is ill-defined. It has been stated that an accurate diagnosis cannot be established without the aid of a virology laboratory. However, an outbreak of a respiratory infection with the above symptoms which is unresponsive to chemotherapy should suggest the diagnosis of adenovirus type 4 infection. In summary, adenovirus type 4 is

the cause of acute respiratory disease which is probably the same as non-streptococcal pharyngitis.

## 2. *Pharyngo-Conjunctival Fever*

Probably more has been written about the clinical features of adenovirus type 3 infection than about any of the other adenovirus infections. This entity is known as adenopharyngeal-conjunctival or pharyngo-conjunctival fever.

Derrick in 1943<sup>10</sup> was the first to report on this clinical entity. He reported three cases of conjunc-

TABLE III

<i>Complaints</i>	<i>Percentage</i>
Sore throat	90.9
Malaise	84.9
Fever (2-8 days)	78.8
Chills	75.8
Coryza	42
Nasal congestion	56
Dysphagia	75.8
Cough	66.7
Headache	66.3
Myalgia	33.3
Backache	27.3
Nausea and vomiting	27.3
Eyeache	18.2
Chest pains	12.1

tivitis with a common source of contact in a swimming pool. These were characterized by conjunctivitis, unilateral in onset, pharyngitis, nasal clogging, headache, spiking fever of five to seven days' duration and clearing by lysis.

Cockburn<sup>6</sup> in 1953 studied an epidemic of a disease in Greeley, Colorado, which was called Greeley fever. The clinical features were conjunctivitis (unilateral or bilateral) followed in some cases by the development of corneal opacities, pharyngitis, myalgia, and pyrexia. These features varied in intensity, and not all were present in each case. Later in the same year similar infections were reported from Kansas, Nebraska, Missouri, South Dakota, Oklahoma, and other portions of Colorado.

Studies by Bell et al.<sup>3</sup> of a similar disease entity, which they found to be caused by adenovirus type 3, suggested that the Greeley outbreak might have been due to the same or a related virus. Cockburn's<sup>7</sup> report on serologic data from paired, frozen, acute, and convalescent sera from 11 representative cases from the Greeley outbreak was consistent with this hypothesis. Ten of 11 sera had a rise in complement-fixing antibody, and eight of nine had a rise in neutralizing antibody to type 3 adenovirus. The clinical findings were conjunctivitis in ten of ten cases, nonvesicular pharyngitis in eight of ten cases, temperature of 101.0 degrees or greater in seven of nine cases, corneal opacities in three of eight, preauricular adenopathy in two of nine, cervical lymphadenopathy in ten of ten, and headache in seven of nine cases.

Bell et al.<sup>3</sup> during the summer of 1954 studied an outbreak of 300 cases of pharyngo-conjunctival fever in a children's day camp in Virginia and in neighboring communities. Adenovirus type 3 was isolated from 80 of these patients, and specific antibody response was found in practically every patient.

The symptoms and signs of the above outbreak are summarized in Table IV.

Not uncommonly the fever spiked to 103 or 104

TABLE IV Bell et al.<sup>3</sup>

<i>Symptoms</i>	<i>Percentage</i>
Fever	90
Sore throat	70
Redeye	60
Headache	68
Malaise, weakness	72
<i>Signs</i>	
Fever 102-104° for 4-5 days	90
Pharyngitis	75
Cervical adenopathy	75
Posterior cervical adenopathy	66
Rhinitis	50
Conjunctivitis	75
a) unilateral	25
b) bilateral	50

degrees F. for one to ten days with a median of five to six days, subsided by lysis, and was often the chief complaint. The sore throat was often mild and was described as more a discomfort or scratching than painful swallowing. The posterior pharynx was frequently injected and prominently studded with glary lymph follicles. Non-tender cervical lymphadenopathy was common even in the absence of a sore throat. Conjunctivitis of mild follicular type was present for a few days to less than three weeks and was manifest by both bulbar and palpebral conjunctivitis. A serous exudate with some matting together of the eyelids and excessive lacrimation was not uncommon, but a purulent exudate was almost non-existent. Photophobia and retro-orbital pain were uncommon, but eye redness and minor discomfort were occasionally the chief complaint.

No deaths occurred and no sequelae were recognized. Otitis media, non-purulent, occurred frequently as a part of a complication of the disease which did not respond well to antibiotics. Headache was a common symptom with drowsiness and listlessness near the end of the febrile illness. Occasionally muscle, joint and bone aches were observed, particularly in adults. The incubation period was from five to nine days with a period of communicability in the first ten days of the illness. Droplets, direct or indirect by freshly contaminated objects, appeared to be the method of spread of this illness, and there was a questionable increase in the incidence of conjunctivitis in relation to swimming. The resistance of the adenoviruses to chlorine is unknown.

Sobel et al.<sup>33</sup> reported an epidemic of pharyngo-conjunctival fever in a large New England boys' camp in July and August of 1955. Additional features of this epidemic were generalized lymphadenopathy in 15 per cent, hepatomegaly in 18 per cent, splenomegaly 12 per cent, meningisms 10 per cent, and a primary wave of mild pharyngitis.



### 3. *Epidemic Keratoconjunctivitis and Other Ocular Manifestations*

Epidemic keratoconjunctivitis has long been a recognized clinical entity and is widespread with a greater incidence in the orient. A review of the literature indicates that Beal was perhaps the first to describe this disease.

The disease was first recognized in the United States in 1941 in the shipbuilding areas along the west coast and was referred to as shipyard conjunctivitis by Hogan and Crawford.<sup>18</sup> The conjunctivitis spread to the United States from the Far East via Hawaii and subsequently caused explosive epidemics in industrial plants, hospitals, medical dispensaries, and offices throughout the United States, according to Thygesen et al.<sup>37</sup>

The first evidence suggesting that adenoviruses might be the cause of conjunctival disease was accidental infection with type 3 virus in laboratory and clinical investigators at the National Institute of Health. Huebner and Rowe<sup>20</sup> observed this development of unilateral catarrhal and follicular conjunctivitis during the autumn of 1953. This alerted workers, and several outbreaks of conjunctivitis were observed in the succeeding months.

Jawetz et al.<sup>23,24</sup> first isolated two adenoviruses from clinical cases of epidemic keratoconjunctivitis in 1955. One virus, isolated from a man from the orient and called "Trim" virus, was later proved to be adenovirus type 8. The second virus was type 3.

Ormsby et al.<sup>29</sup> reported an epidemic of keratoconjunctivitis at the Ford motor plant in Windsor, Ontario, in 1951. Clinically these cases were characterized by follicular hypertrophy in the lower conjunctival fornix associated with pseudomembranes, marked tearing, and preauricular adenopathy. Eighty-nine of 549 cases developed corneal subepithelial opacities which were demonstrated by focal illumination with a binocular loupe. One year later 29 of 61 patients continued to have corneal opacities with resultant visual disturbances.

Clinically epidemic keratoconjunctivitis as reported by Jawetz et al.<sup>23</sup> occurs after an incubation period of seven to ten days with the development of an intense follicular conjunctivitis, sometimes a pseudo-membrane formation, accompanied by enlarged tender preauricular lymph nodes. Then, in most cases, five to ten days later corneal lesions develop. These lesions are characteristically small, round, subepithelial, corneal opacities without superficial ulceration or imposed sensitivity of the cornea. Serious visual interference may be caused by these opacities. There is an increased incidence of conjunctivitis in the summer months which may be related to swimming pool transmission, as was noted in the Greeley epidemic of 1951 by Cockburn et al.<sup>7</sup>

Adenoviruses types 3, 7, and 8 are well established as etiologic agents of ocular disease. Types 3 and 7

cause acute follicular conjunctivitis with systemic symptoms and infrequently with corneal opacities. Type 8 causes epidemic keratoconjunctivitis with frequent opacities, rarely accompanied by systemic manifestations. Later data reviewed by Solorzano<sup>34</sup> showed that 93 per cent of patients with epidemic keratoconjunctivitis developed antibodies against adenovirus type 8.

### 4. *Primary Atypical Pneumonia*

Hilleman and Werner<sup>15</sup> reported cases of pulmonary involvement with acute respiratory disease. From the throat washings of one of these patients with a clinical and x-ray diagnosis of primary atypical pneumonia, an adenovirus type 4 was isolated from throat washings. They subsequently noted that those cases of primary atypical pneumonia with evidence of infection by adenovirus type 4 failed to develop cold agglutinins or agglutinins against the streptococcus M.G. It was then concluded by Hilleman and Werner that the adenovirus type 4 probably could be responsible for a large portion of cold agglutinin and streptococcus M.G. negative primary atypical pneumonias.

Serner<sup>36</sup> reported a case of typical pneumonia in an eight-month-old girl. Adenovirus type 7 was isolated from the nasopharynx and feces on the seventh day of the illness. There was a convalescent fourfold increase in antibody titer from negative on the seventh day of illness. Berge et al.<sup>4</sup> isolated adenoviruses types 3, 4, and 7 from military recruits suffering from respiratory illnesses ranging from mild febrile rhinitis to primary atypical pneumonia at Fort Ord, California.

### 5. *Non-Tuberculous Juvenile Bronchiectasis*

Non-tuberculous bronchiectasis in children is ill-defined and is often attributed to some episode of pyogenic bronchitis. Macfarlane and Summerville<sup>27</sup> have suggested that many cases are due to a chronic infection of the bronchi by the adenoviruses and that the persistence of the virus may cause some of the characteristics of the lesion. Their hypothesis arose from the observation of a similar respiratory disease in cattle called "cuffing pneumonia" which was of suggested viral etiology. In cattle the disease began in the calf with mild peribronchial lymphocytic infiltration, passed through a chronic stage with predominant lymphoid hyperplasia, and ultimately developed into bronchiectasis with fibrosis.

With this in mind they studied lobectomy specimens from patients with bronchiectasis, and the predominant feature present in about 75 per cent of the cases was lymphoid hyperplasia affecting the hilar nodes and irregularly narrowing the lumen of the bronchial ramifications in the affected segments of the lungs. A comparison with "normal" lungs showed an absence of this lymphoid hyperplasia. Their finding led to the search for evidence of a virus in these

patients. In 11 of 18 patients investigated a significant rise in antibody titer was found, and an adenovirus was isolated from one case. However, on the basis of other studies one could expect to find similar serologic evidence of the adenoviruses in the normal population.

#### 6. Diseases of Lymphoid Tissue

The adenoviruses were originally isolated from hypertrophied tonsils and adenoids. Rowe and Huebner<sup>31</sup> isolated adenoviruses from 27 of 30 (90 per cent) suspensions of adenoids and tonsils cultured. In pharyngo-conjunctival fever follicular enlargement of the submucous lymphoid tissue of the pharynx and conjunctivae with enlargement of the regional lymph nodes is noted. In addition the adenoviruses have been isolated from other diseases involving lymphoid tissue. Rowe in 1955 demonstrated type 3 virus in the mesenteric lymph nodes and lungs of an infant dying of Letterer-Sieve disease; subsequently another "D C strain," according to Rowe and Huebner,<sup>31</sup> has been isolated from the stool of an undiagnosed reticulo-endothelial system disease resembling Nieman-Pick disease. Kjellen<sup>25</sup> isolated adenovirus types 2, 3, and 5 from stools of 6 of 82 patients with mesenteric lymphadenitis, and in three cases the virus also was isolated from mesenteric lymph nodes.

#### 7. Other Diseases

Neva and Ender<sup>28</sup> have reported the isolation of adenovirus type 3 from an infant with a disease resembling roseola infantum. The isolation of an adenovirus in the case of Letterer-Sieve and Nieman-Pick disease was most likely a coincidental finding.

### Epidemiology

Present evidence indicates that the adenoviruses are widespread throughout the world. Supposedly epidemic keratoconjunctivitis was carried to the United States from the orient via Hawaii. Van Der Veen et al.<sup>38</sup> reported on the occurrence of acute respiratory disease caused by an adenovirus in military recruits in the Netherlands. Kjellen<sup>25</sup> has cultivated adenoviruses from patients in Sweden. Balducci et al.<sup>1</sup> reported isolation of adenoviruses from adenoids of patients with acute respiratory disease at Sheffield, England. Ormsby et al.<sup>29</sup> have reported epidemic keratoconjunctivitis in Canada. The above and the widespread outbreaks of adenovirus infections in the United States, especially in military recruits, points out the world-wide distribution of the adenoviruses.

*Age and sex incidence.* The adenoviruses are widespread and produce infection in all age groups. Newborns have complement-fixing and neutralizing antibodies comparable to those of the mothers. At six weeks the complement-fixing antibodies are gone, but neutralizing antibodies are still detectable. At one year of age neutralizing antibodies are present only

if complement-fixing antibodies have reappeared. Over 50 per cent of children tested between 6 and 12 months of age had neutralizing antibodies to at least one adenovirus, usually type 1 or 2. The 5- to 9-year age group is affected most often in epidemics of pharyngo-conjunctival fever. The incidence of antibodies increases with age. Of 50 people between 31 and 77 years of age tested by Rowe et al.,<sup>31</sup> all had antibodies to at least one type and 72 per cent had antibodies to four or more of six types tested. Sex differences in attack rates are not observed in children; however, in adults women are affected twice as often as men. This is supposed to be due to the fact that women are more frequently exposed while caring for the sick at home.

Immunologically there is a gradual increase in the per cent of sera containing complement-fixing antibodies. At six months of age 20 per cent have complement-fixing antibodies. A peak of about 74 per cent is reached in the 18- to 25-year age group (previous military training may alter this percentage), and then there is a decline to about 23 per cent in the 61- to 70-year age group.

The incubation period is normally five to six days but may range from one to ten days.

There is a seasonal incidence with increased frequency in winter months, but the disease is seen in some areas during the summer, as was the case in the epidemics at Greeley, Colorado,<sup>6</sup> and Virginia<sup>3</sup> where swimming pools were believed to be a factor in the spread of the adenovirus. Adenovirus infections may be epidemic or sporadic in form.

The infectiousness of the adenoviruses is high during epidemics with attack rates between 60 to 70 per cent in the exposed population. The period of infectivity lasts about ten days.

The spread of the virus is probably by person to person direct contact or by the airborne route. Fomites may serve as vehicles for spread of the virus and, as mentioned, swimming pools are suspected sources of infection especially in pharyngo-conjunctival fever.

No animal reservoir of the adenovirus has been demonstrated other than man. The problem of whether humans might be carriers of the adenoviruses has not been solved.

### Preventive and Therapeutic Measures Available

The acute respiratory diseases are probably responsible for more absenteeism from school, industry, and military duty than from any other illness. In a study at the University of Wisconsin by Evans,<sup>12</sup> respiratory illnesses were responsible for 33 per cent of the infirmary admissions per year, the single most important cause of admissions. That respiratory illnesses are a major problem to the armed forces is pointed out by the fact that in certain recruit training camps the adenoviruses have been responsible for



up to 90 per cent of hospital admissions for respiratory disease during the winter months and for up to 60 per cent of all hospital admissions for these illnesses during the entire year, according to Hilleman et al.<sup>14</sup> Since respiratory illnesses were causing such a tremendous time and economic burden on troop training centers, investigative work was started in order to develop an effective vaccine against the adenovirus.

Huebner et al.<sup>19</sup> were the first to describe the use of heat-inactivated and formalin-inactivated vaccines of adenovirus type 3 prepared from monkey tissue cultures. They studied the effectiveness of the vaccine in (a) producing specific neutralizing antibodies in the serum and (b) the prevention or modification of artificially induced infection and disease. These studies were performed on 83 male inmates of an institution. An antibody response similar to that of naturally acquired antibody levels was obtained with the vaccine. The vaccine was effective in reducing infection from 90 per cent in unprotected to 27 per cent in vaccine-protected subjects.

Hilleman et al.<sup>14</sup> reported the use of a vaccine containing types 4 and 7 adenovirus in 311 recruits which was effective in reducing the incidence of hospitalizations for acute respiratory illness from 23.8 per cent in the unvaccinated group to 4.8 per cent in the vaccinated group.

Bell et al.<sup>2</sup> reported on the use of a trivalent adenovirus vaccine (types 3, 4, and 7) in naval recruits at the Great Lakes Naval Training Center. They reported a 50-70 per cent decrease in the number of febrile respiratory illnesses in the vaccinated group when compared to a similar unvaccinated group.

The above information indicates the usefulness of a vaccine in reducing incidence of acute respiratory illness in military populations. However, Evans<sup>12</sup> at the University of Wisconsin found that only 2.0 per cent of their hospitalized cases of respiratory illnesses were due to an adenovirus and concluded from this evidence that immunization against the adenovirus was not indicated.

The treatment for active adenovirus infection was not elaborated on in the literature. However, Cecil and Loeb<sup>5</sup> advocate the same general principles of therapy as for the "common cold." Bed rest should be enforced in those with a temperature over 100.0 degrees or those with some complicating chronic disease. Acetylsalicylic acid is given for "symptomatic" relief; for a troublesome cough, a cough mixture containing codeine may be given. Ephedrine  $\frac{1}{4}$  to 1 per cent may be given for nasal congestion, and the antihistamines are widely used and have some beneficial effect on catarrhal symptoms. Antibiotics should be reserved for those cases in which there is a strong likelihood of developing a complication such as bronchopulmonary infection, sinusitis, or otitis media.

In epidemic keratoconjunctivitis special care should

be taken in the doctor's office to prevent spread of infection by contaminated instruments. Hogan<sup>17</sup> states that attempts to control the disease with various therapeutic agents have been unsuccessful. Antibiotics have been useful in treatment of secondary invaders.

Thus in infections caused by the adenoviruses, as is true in many diseases of viral etiology, there are no specific therapeutic measures but only "symptomatic treatment."

## Summary

A review of the literature on the recently isolated group of adenoviruses has been made. To date 18 serological types of human adenoviruses have been isolated. They share a common complement-fixing antigen but produce a type specific neutralizing antibody.

The adenoviruses are responsible for those respiratory illnesses described as acute respiratory disease, pharyngo-conjunctival fever, and probably those cases of primary atypical pneumonia not characterized by cold agglutinins or agglutinins against streptococcus M.G. Other diseases such as mesenteric lymphadenitis, roseola infantum, and non-tuberculous juvenile bronchiectasis have not been proved to be of adenovirus etiology. Isolation of an adenovirus in cases of Letterer-Sieve and Nieman-Pick diseases was probably coincidental.

The adenoviruses are widespread throughout the world and may be either sporadic or epidemic in nature but are prone to cause disease in large groups such as military recruits and factory workers.

Vaccines have proved effective in lowering the incidence of adenovirus infection in military populations, but their usefulness in the civilian population has not been proved. The systemic effects of adenovirus infections are treated "symptomatically."

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### 50th Year of Tuberculosis Work

The 50th anniversary meeting of the Kansas Tuberculosis and Health Association and the Kansas Trudeau Society was held in Topeka, October 1 and 2.

New officers for the Trudeau society were elected as follows: president, Dr. John K. Fulton, Wichita; president-elect, Dr. James C. Dowell, Lawrence; secretary-treasurer, Dr. Francis N. Lohrenz, Newton; members of executive group, Dr. Robert G. Loudon, Chanute, and Dr. William W. Abrams, Kansas City.

Re-elected to the board of directors of the tuberculosis association were: Dr. Dowell, Dr. Fulton, Dr. B. W. Lafene of Manhattan, Dr. H. R. Wagenblast of Salina, and Dr. G. M. Martin, Topeka. Elected to the board for the first time are Dr. Roy A. Lawson, Jr., Chanute, and Dr. Calvin A. Pyle, Leavenworth.

A resolution was approved commending Dr. C. F. Taylor, Norton, for "outstanding service" in the fight against tuberculosis, and he was presented a bronze medallion. Another resolution continued the group's endorsement of the Stocklen report.

Kansas participants in the scientific program were: Dr. Ralph I. Canuteson, Lawrence; Dr. Lawson, Dr. Pyle, Dr. Martin, Dr. Charles Pokorny of Halstead, and Dr. Martin J. FitzPatrick, Kansas City.

Last year 83 Kansans died because of accidental burns, and 67 received the burns in their homes. The very young are the chief victims, according to the Kansas State Board of Health.

# Economics in Medicine

## *Outline of Procedures to Prevent Collection Problems*

**FLOYD F. WEHRENBURG, Kansas City, Missouri**

You have undoubtedly heard many times that the best way to lose a patient is to let his account become delinquent. For this reason it is important not only to your financial program but to your practice to be certain your collections are good.

Many doctors don't really know whether or not they have collection problems. Many who have simply assume that all doctors have the same trouble. Here are two guides to help you decide (based, of course, on the assumption that yours is an established practice):

1. Your collection percentage should consistently be 95 per cent or over. (Divide your total charges into your total cash receipts for a month or a year to determine your collection percentage.)

2. You should not have more than four months' average charges on your books. (Total your accounts receivable. If the average charges total \$3,000 per month, your accounts should not appreciably exceed \$12,000.)

### **Preventives**

If you have a collection problem you will want to do two things, (1) prevent further delinquencies and (2) collect as many delinquent accounts as possible. The following four rules, if carefully adhered to, will serve to prevent many delinquencies:

1. Inform the patient of every charge.
2. Send monthly statements to all patients.
3. Have an understanding about payment of accounts with all patients who do not have an "A" credit rating.
4. See that patients carry out their arrangements to pay by establishing proper follow-up procedures.

On minor charges the patient can be informed of your fee by means of the charge slip. A recent survey proved that doctors properly using the charge slip average five per cent higher collections than those who do not.

When a major fee is to be incurred, it is up to you to explain that fee to the patient in advance. Conclude your explanation with this remark: "Any financial arrangements you wish to make with my secretary

will be perfectly all right with me." Then don't discuss finances with the patient!

Assuming you have the capable assistant you should have, that's her job, and she can do a better job at it than you because she is informed of the patients' credit ratings. Nothing is more embarrassing to a medical assistant who is trying to be effective in promoting good collections, or more damaging to your collections, than to have the patient say, "The doctor told me I could pay any time I was able."

Your job is to explain the fee (unless you have also delegated this responsibility to your assistant) and refer the patient to her to make arrangements for payment. She will work out a plan that is most convenient for the patient and still will assure your being paid in a reasonable time.

### **Follow-up Procedures**

Statements should be sent monthly to all patients with open accounts except those requiring letters. If an account has gone for 90 days without service or payment, the patient should receive a letter. That letter may be brief but should be courteous and give the patient an opportunity to "save face" by offering him an excuse. Did he forget? Did he not receive the statements? Is there another reason?

If no reply is received, your secretary should follow this letter with another in 30 days. This is continued for three or four months. Each letter will be a little more firm in requesting payment, but never impolite or sarcastic. Your final letter will state that the account will have to be given to a collector unless payment is received in ten days.

Then, if payment is not received in ten days, the account must be given to a collector promptly or your entire education philosophy and techniques will be rendered ineffective. There is nothing more you can do. Why have your assistant spend valuable time (which costs you more in the long run than the collector's fee in most cases) trying to enforce payment when the patient now knows you don't mean what you say. Be sure you select an ethical collection agency and you'll have nothing to worry about in public relations. In fact your public relations will benefit from your fairness in the eyes of those patients who sacrifice to pay their accounts and resent others being able to avoid paying theirs.

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Mr. Wehrenburg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

This same follow-up rule applies to patients whose promises have been made and not kept. The patient should promptly be reminded of his promise and his failure to keep it. If he consistently breaks promises, don't waste your time with him. Notify him that his account is to be given to a collector unless payment is made, and then do so if he fails again.

Suppose a patient makes one payment and then stops? Send another letter thanking him but reminding him that payments must be regular.

As long as patients know you expect them to keep their promises and that you will treat them all fairly, most will make the necessary effort to keep their accounts current. But you must set the example. If you are faithful to your procedures, they will be faithful in their payments.

## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### PAT ON BACK

Speaking of doing things for others, Allen County physicians deserve a mighty nice pat on the back for the mass immunization program they are now carrying on for the benefit of the county's school children.

They aren't getting paid a cent. In fact, it is costing them a little money out of their own pockets. They don't have to do it. Indeed, they had to go out of their way to make an opportunity to perform this service for the community.

The vaccines are available without cost from the Kansas State Board of Health. But a community must ask for them and it must provide a method of giving the shots without cost to the children or their parents.

Allen County was one of the leaders in the state in setting up a county-wide immunization program when the Salk vaccine was first available. And it has followed through every year since, whereas many other counties have fallen by the wayside.

For a couple of years, the physicians who administered the shots were paid some 25c a shot by the county. They didn't keep the money, personally; they turned it over to the treasury of the county medical society.

But for the past two years they have received nothing. Not only that, they have furnished their own equipment and have used up around \$5 worth of

needles and other materials apiece while doing this work.

It doesn't, of course, add up to a "sacrifice" of major proportions. But it certainly does add up to a mighty fine voluntary public service, whose value to the community in health protection can't even be measured in terms of money.

One of the tragedies in this country today is the thousands upon thousands of children who are NOT getting the protection against polio, diphtheria, whooping cough, and tetanus that is now universally available—just through carelessness, neglect, or plain inertia.

But it's not happening in Allen County. And the county health officer and the county physicians deserve all the credit.—*Iola Register, October 15, 1958.*

### A.M.A. Office Remodeling

The American Medical Association, largest medical organization in the world with 171,000 physician members, has contracted for a \$2,000,000 modernization program of its headquarters building at 535 North Dearborn Street, Chicago.

The building, on the northeast corner of Dearborn Street and Grand Avenue, is the hub of the A.M.A.'s professional and public services and houses a staff of 650.

The contract for the work has been signed with Great Western Contracting Company, Chicago, and the job of remodeling the nine-story gray granite building will get underway immediately.

The contract calls for installation of new lobbies, entrances, air conditioning and automatic elevators, and for complete modernization of all corridors and offices, with dropped acoustic ceilings, fluorescent lighting, new flooring, new walnut paneling, and glass partitions.

The job will require 24 months and will provide adequate meeting space and restaurant facilities for employees and visiting physician members.

The A.M.A. has occupied its present site, with many expansions, since March 1902, when it purchased its first piece of land, 100 feet on Dearborn Street and 80 feet on Grand Avenue, then known as Indiana Street, for \$42,000.

On this plot were five rather old two-story and basement buildings. They were torn down and a new three-story brick and stone building was erected at a cost of \$35,000. More adjacent ground was purchased in June 1903 and shortly after that additions to the building were made.

The present structure, including a small auditorium, was completed in 1937, with a six-floor addition in 1947.



## PHYSICIANS' ACTIVITIES

**Dr. J. S. Reifsneider**, Wichita, was in Brussels, Belgium, in September to attend the International Congress of Ophthalmology.

"Problems of the Aging" was the subject covered by **Dr. Ralph E. White**, Garnett, in an article written for the *Anderson Countian* last month. It was one of a series designed to show residents of the area the necessity for providing a home for the aged.

A feature story in the *Topeka Daily Capital* in September paid tribute to **Dr. Irene A. Koeneke**, Halstead, and described her practice, travels, and interests.

Plans to close his private office have been announced by **Dr. Walter Stephenson**, Norton, who reports he will remain on the staff of the Norton Sanatorium.

**Dr. Ellis Duncan**, who has been practicing in Burlington, has announced plans to move to Oskaloosa, Iowa, where he will join a clinic group and specialize in surgery.

**Dr. Raymond G. House**, Wichita, attended a postgraduate course at Harvard Medical School last month.

"Recent Developments in Medicine" was the subject chosen by **Dr. Jack Catlett**, Emporia, for a talk at a recent meeting of the Emporia Kiwanis Club.

**Dr. R. R. Snook**, McLouth, one of the first physicians to be located in a small town under the "Kansas Plan," was guest of honor at a surprise party in McLouth on October 5, the occasion marking his tenth anniversary of beginning practice there.

The Public Health Service recently assigned **Dr. Harry Allen** to the Kansas State Board of Health to work on chronic diseases. He holds a master of public health degree from Harvard and has been with the Public Health Service two years.

**Dr. Josaphyne Davis**, health officer in Franklin County, has resigned that position because of poor health.

A husband and wife team, **Dr. Adrian Duffy** and **Dr. Eileen Duffy**, recently joined the medical staff of the Osawatomie State Hospital. Both were educated in Ireland and came to this country to serve their internships at Mount St. Mary's Hospital, Niagara Falls, New York.

**Dr. Harry Ricketts**, a graduate of Tulane University who has completed a surgical residency at St. Luke's Hospital, Kansas City, Missouri, has moved to Ottawa to practice in association with **Dr. John F. Barr** and **Dr. Robert A. Gollier**.

A talk on the adrenal glands was presented by **Dr. Fred Doornbos**, El Dorado, at a recent meeting of the Graduate Nurses Club of that city.

**Dr. Charles Rombold**, Wichita, presented a paper, "Trochanteric Bursitis, Snapping Hips, Sprains of Hip," at a meeting of the American College of Surgeons in Chicago last month.

Among speakers at the annual meeting of the Kansas Division of the American Cancer Society, held in Wichita last month, were **Dr. Robert E. Stowell**, of the University of Kansas Medical Center; **Dr. D. Cramer Reed** and **Dr. Wilbur G. Cauble**, Wichita, and **Dr. George A. Westfall**, Halstead.

**Dr. Mildred Passmore**, who recently completed work in pediatric hematology at Charity Hospital, New Orleans, has announced plans to practice at the Snyder Clinic, Winfield.

**Dr. Donald E. Wilcox**, of the Kansas State Board of Health, attended a five-week course in field epidemiology at the Public Health Service Communicable Disease Center in Atlanta recently.

A talk on medical hypnosis was given by **Dr. C. Ray Athey**, Wichita, at the annual convention of the Kansas Schools of Student Nurses Association in Pittsburg last month.

**Dr. Edwin P. Deal**, Pretty Prairie, has been employed by the commissioners of Reno County as county physician.

**Dr. Calvin J. Zerwick**, a diplomate of the American Board of Surgery, moved to Kansas recently and is now practicing in Arkansas City. He recently completed a course at the Sloan-Kettering Institute of the Cornell University Medical College under a research fellowship.

**Dr. Charles W. Graham**, radiologist at St. Thomas Hospital, Colby, gave an explanation of a radiologist's work at a recent meeting of the Colby Lions Club.

"Diagnostic X-rays" was the subject discussed by **Dr. E. M. McCusker**, Halstead, at a recent meeting of the Harvey County Medical Assistants Society in Newton.

**Dr. Donald D. Dieter**, former Salina surgeon, is now practicing in Eustis, Florida, as a member of the staff of the Eustis Clinic.

**Dr. H. A. Anderson**, Wichita, was elected to membership in the Clinical Orthopedic Society at the organization's meeting in Denver, October 2-4.

**Dr. Vernon E. Wilson**, associate dean of the University of Kansas School of Medicine, was one of the speakers at a youth health conference held in Concordia last month.

A physician who has been practicing in Stafford during the absence of **Dr. O. W. Longwood**, **Dr. Howard Gard**, is now serving in the Navy and expects to be stationed at Pearl Harbor for two years.

**Dr. Douglas Ferraro**, formerly of Providence, Rhode Island, is now associated with the Lattimore-Fink Laboratories in Topeka.

**Dr. Robert H. Riedel**, of the Kansas State Board of Health, has been named director of the Division of Local Health Services for the board.

A new physician in Minneola is **Dr. William James Porter**, now associated in practice with **Dr. D. L. Richardson**. Dr. Porter received his medical degree from the University of Kansas in 1951, served his internship at St. Joseph Hospital, Kansas City, Missouri, and has since been in practice in Independence, Missouri, specializing in obstetrics and gynecology.

**Dr. Frances Schiltz** recently became director of the American Red Cross Blood Bank in Wichita.

A talk on ethics was given by **Dr. William J. Reals**, Wichita, at the October meeting of the Cowley County Medical Assistants Society in Winfield.

## DEATH NOTICES

JOHN RAYMOND SHUMWAY, M.D.

Dr. John Raymond Shumway, 80, Pleasanton, died at a Fort Scott hospital on October 2 after a long illness. A graduate of the Kansas City Medical College, Dr. Shumway practiced in Home City before moving to Pleasanton in 1917. He retired more than two years ago after suffering a stroke.

PAUL ERNEST KOERBER, M.D.

An 82-year-old physician, Dr. P. E. Koerber, Russell, died there on October 6 after having been hospitalized more than two years. He had practiced in Russell from 1918 until poor health forced his retirement. A native of Germany, he was graduated from the University of Munich. He established his first practice in this country in Nebraska in 1899. He had been an honorary member of the Central Kansas Medical Society since 1943.

FRANK A. KINNAMON, M.D.

Dr. F. A. Kinnamon, 79, Concordia physician for 34 years and Cloud County coroner and health officer for the past 15 years, died on October 9 after suffering a heart attack. A graduate of Kansas Medical College in 1913, he practiced in Jewell City for 11 years before opening his office in Concordia. For a 12-year period he was a member of the Concordia Board of Education.

Seven Kansas physicians became fellows of the American College of Surgeons at a meeting held in Chicago last month. They are: **Dr. Don R. Miller** and **Dr. Earl C. Sifers** of Kansas City; **Dr. Homer B. Russell**, Great Bend; **Dr. George J. Millet**, Larned; **Dr. John G. Esch**, Pittsburg; **Dr. Robert E. McCall, Jr.**, Wadsworth, and **Dr. William R. Miller**, Wichita.

**Dr. John B. Jarrott**, Hutchinson, discussed orthopedic surgery and disability ratings at a recent meeting of the Kansas Claims Association in Hutchinson.

An award was recently presented to **Dr. H. Preston Palmer**, Scott City, in recognition of his 15 years of service to the selective service program in his tri-county area.

**Dr. Ralph S. McCants**, formerly with the Lattimore-Fink Laboratory in Topeka, has moved to Sayre, Pennsylvania, and is there associated with the Guthrie Clinic.

A paper by **Dr. DeMerle E. Eckart**, Hutchinson, "Sodium Pentothal Solution, an Adjuvant in the Treatment of Acute Alcoholism," published originally in the JOURNAL OF THE KANSAS MEDICAL SOCIETY in August 1954, will be included in a collection of papers at the Library of the Yale Center of Alcohol Studies Archives of Alcohol Literature. The collection is assembled and maintained for research purposes.

## COUNTY SOCIETIES

Members of the Shawnee County Medical Society entertained their wives at a dinner meeting at the Hotel Jayhawk, Topeka, on October 6. The program was presented by a panel of four speakers who discussed legal adoptions: Judge E. Newton Vickers; Dr. Edward D. Greenwood, coordinator of training in child psychiatry at the Menninger Foundation; Miss Marie Scott, social worker for the Kansas Children's Home and Service League, and Miss Ruth Elsenratt, of the Child Welfare Division, Kansas State Department of Social Welfare.

Honored at the meeting was Dr. W. L. Warriner on the occasion of his 96th birthday. Dr. Warriner is thought to be the oldest practicing physician in the state.

Dr. Robert Weber, assistant professor of medicine of the University of Kansas School of Medicine, was guest speaker at a meeting of the Sedgwick County Society held in Wichita on October 7. He discussed staphylococcus infection and the use of antibiotics.

The Auxiliary in Cowley County was entertained by the medical society at a dinner meeting at the Winfield Country Club last month. Separate sessions were held later with Dr. Averill Stowell, Tulsa, addressing the physicians on whiplash injuries of the neck.

Thirty-eight physicians attended a meeting of the Central Kansas Medical Society in Russell last month. Two physicians from the University of Kansas School of Medicine presented the program, Dr. Frank Masters speaking on "Facial Trauma" and Dr. Lynn Litton on "Injuries of Joints with Stress on Athletic Injuries."

Dr. Arnold H. Baum, president of the Ford County Medical Society, presented an honorary membership in the society to Mr. Milburn Stone, television actor who plays the part of "Doc" Adams in the "Gun-smoke" cast, when a group of television stars visited Dodge City last month on a "Return to the Santa Fe Trail" junket. Dr. Thomas P. Butcher, president, represented the Kansas Medical Society at the event.

Dr. Roscoe F. Morton, Arkansas City, was elected president of the Cowley County Medical Society at a meeting held in September. Other officers are: Dr. Carroll D. Behrhorst, Winfield, vice-president, and Dr. Bruce G. Smith, Arkansas City, secretary-treasurer.

The Riley County Medical Society has gone on record as favoring a bond issue for funds to construct a home for the aged of the county.

Physicians at the Schilling Air Force Base Hospital, Salina, were hosts at the September meeting of the Saline County Medical Society. The program consisted of a panel discussion on acute chest injuries with Dr. William E. Mowery, Salina, as moderator. Panel members included Dr. Dan Greer, Cheyenne, associate professor of surgery at the Colorado University Medical Center; Dr. Ben Eiseman, Denver, professor of surgery at the same school; Dr. Bernard Brungardt, Salina, and Dr. G. Sherman Ripley, Jr., Salina. A social hour and dinner completed the day's program.



The Bourbon County Medical Society was made the beneficiary of an estate estimated to total at least \$20,000, according to an attorney who has filed for probate the will of Mrs. Maude Carpenter LePard, a former Bourbon County resident who died last month. The will provides that the money is to be used by the medical society, at its discretion, for children of Bourbon County.

## BOOK REVIEWS

*Diseases of the Esophagus.* By J. Terracol, M.D., and Richard H. Sweet, M.D. Published by W. B. Saunders Company, Philadelphia. 682 pages, illustrated. Price \$20.

With the French author's understanding cooperation, Dr. Sweet has rearranged and added to the translated 1951 second French edition of Professor Terracol's "Les Maladies de L'Esophage." The American edition thus represents the best features of the endoscopist's original volume, blended nicely with Dr. Sweet's extensive knowledge and experience in esophageal surgery. The result is a well documented, thorough, detailed (but not stuffy), methodically presented, clearly written and adequately illustrated study of the esophagus, its diseases, and their treatment.

Besides Professor Terracol, some 11 French authors contributed significantly to various sections of the second French edition. Moreover, the unusually broad reference base on which the volume is constructed is evidenced in the bibliography's 72-page length. The bibliography itself is probably the finest collection of references to the literature on the esophagus available anywhere, and its usability to the American reader is only slightly hampered by the fact that the references—even to the American literature—have been left un-retranslated from the French.

The 408 illustrations include 85 new ones with many roentgenographic reproductions and anatomical drawings, as well as operative sketches, many of these from Dr. Sweet's previous publications. Three full color plates present multiple views of the normal and (especially) the pathological esophagus.

So well planned and written is this book that it is difficult to single out individual chapters for comment. However, the chapters dealing with malignant tumors and their treatment and with esophagospasm and megaesophagus (achalasia) reflect intense interest on the part of the authors.

The chapters on anatomy, physiology, roentgen examination of the normal esophagus, and on esophagoscopy and esophageal biopsy are unusually

thorough and detailed. Those on congenital malformations and alterations in position, changes in contour, and compression give proper stress to embryology. Diverticula and abnormalities of the vein are thoroughly discussed and their surgical treatment is well illustrated. The relatively short but concise sections on acute corrosive esophagitis and cicatricial stenosis should be read by all physicians seeing such cases at any time.

Other chapter titles include: instrumental exploration (bougienage); atony and paralysis; acute and chronic non-specific esophagitis; esophageal abscess; phlegmonous esophagitis, periesophagitis and mediastinitis; non-specific ulcerations; specific infections; disorders associated with diseases of the skin and mucous membrane; esophageal substitution; acquired communications with the air passages (esophagotracheal and esophagobronchial fistulae); rupture and external injury; instrumental perforations (endoscopic injuries, etc.); foreign bodies; extraction of foreign bodies from the esophagus, and benign tumors.

An appendix supplies diets for patients with various degrees of obstructive dysphagia, derived from the *Diet Manual of the Massachusetts General Hospital*.

*Diseases of the Esophagus* is a must for every general reference library and should be a helpful addition to the bookshelf of every practitioner dealing specifically with the esophagus in any fashion.—B.M.P.

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*A Method of Anatomy. Sixth Edition.* By J. C. Boileau Grant. Published by Williams and Wilkins Company, Baltimore. 879 pages. Price \$11.

The sixth edition of this outstanding *Method of Anatomy* has been completely revised throughout. Considerable new material has been added, especially dealing with matters of clinical importance such as lubrication of joints, electromyography, mechanics of the foot, the neurovascular hila of muscles, the lymphatics, the eruption of teeth, and newer knowledge concerning the fusion times of epiphyses. There are 34 new illustrations. One of the new features is the cross references which eliminates much of the repetition found in earlier editions.

The new international anatomical nomenclature replaces the old B. N. A.; where these terms differ, the supplanted term is given in brackets. This is done to pass over gently and effectively the transition that inevitably must occur. To bring cosmos out of chaos is truly a great step forward. This is done by reducing 30,000 words used throughout the anatomical world to 5,000. This was accomplished by following the simple rules listed below:

1. Each part carries only one name.

2. Each term is in Latin.
3. It is expressed in terms as short and simple as possible.
4. There is no speculative interpretation in the terms.
5. Related terms are used throughout, such as, femoral artery, femoral vein, nerve.
6. Adjectives are used as opposites such as, major-minor, superior-inferior.

One can say that throughout the sixth edition the author has given to the American student a truly "reasonable" approach to anatomy. By diagram and line drawings of regions of the body, Dr. Grant has admirably presented this difficult science. His atlas supplements the "method."

For the beginner this is a delightful guide. For a seasoned practitioner the "method" not only holds its claim but is a ready guide to complicated areas easily lost to memory if not continually used.

It is fitting that I quote the first paragraph of the first edition.

"The study of human anatomy may be attempted in either of two ways. One consists in collecting facts and memorizing them. This demands a memory which is wax to receive impressions and marble to retain them. Even so endowed a student will not master the infinite complexities of the subject. The other way consists in correlating facts, that is, studying them in their mutual relationships. This leads inevitably to the apprehending of the underlying principles involved, and the 'raison d'être' of such relationships. The student will thus learn to reason anatomically and will find the acquisition of new and related facts an easier task. It is the purpose of this book to lead the student to approach the subject from this viewpoint, and it involves certain departures from tradition."

## ANNOUNCEMENTS

Part I examinations, American Board of Obstetrics and Gynecology, January 16, 1959. Case abstracts must be submitted before examination. Bulletins outlining requirements available from Dr. Robert Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

American College of Chest Physicians offers three cash awards, \$500, \$300 and \$200, for winning essays on diagnosis and treatment of chest diseases. Contest open to undergraduate medical students. Contest closes April 15, 1959. Write the College, 112 East Chestnut Street, Chicago 11, Illinois.

Postdoctoral research scholarships in the field of neuromuscular diseases available through Sister Elizabeth Kenny Foundation, 2400 Foshay Tower, Minneapolis 2, Minnesota. Appointments made annually. Stipends for five-year periods at rate of \$5,000 to \$7,000 per year.

Postgraduate course, "Reconstructive Surgery of the Nasal Septum and External Nasal Pyramid," White Memorial Hospital, Los Angeles, January 6-16 with week-end free. Sponsored by College of Medical Evangelists and Southern California School of Medicine. Course directed by Dr. Maurice H. Cottle, Chicago Medical School, with cooperation of American Rhinologic Society. Information available from Dr. Leland House, 435 South Soto Street, Los Angeles 53.

Symposium, "Treatment of Lymphomas and Leukemias," Skirvin Hotel, Oklahoma City, December 6, 9:00 a.m. until 5:00 p.m., under sponsorship of American Cancer Society, Oklahoma Division. Speakers: Dr. William Dameshek, Boston; Dr. Leon Dmochowski, Houston; Dr. Leon O. Jacobson, Chicago; Dr. Wayne Rundles, Durham, North Carolina.

International College of Surgeons, 24th annual congress, Palmer House, Chicago, September 13-17, 1959.

Second World Conference on Medical Education, sponsored by World Medical Association, Chicago, August 30-September 4, 1959. Theme—"Medicine, a Lifelong Study."

National Institute of Mental Health, Bethesda 14, Maryland, offers grant support for training program for physicians for two purposes: (1) to foster development of postgraduate training in psychiatry and (2) to provide support for physicians in practice who wish to become psychiatrists. Stipends available up to maximum of \$12,000 per year. Direct inquiries to Dr. Seymour D. Vestermark, Chief, Training Branch.

### CLASSIFIED ADVERTISEMENTS

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## Female Hirsutism

### *Study of Chromatography of 17-Ketosteroids*

ROBERT E. BOLINGER, M.D., and  
ROSEMARY SCHREFFER, M.D., *Kansas City*

Female hirsutism is a problem not infrequently encountered in clinical practice. Unfortunately, regardless of the cause, once a true hirsute condition is established, the removal of the cause usually does not reverse the hirsutism. Thus, from the standpoint of treatment, the important consideration is not so much reversal of the hirsutism but the diagnosis and treatment of any underlying disease process.

The records of 34 females with hirsutism are summarized in Table I. This cannot be considered as a representative cross section of hirsute females seen in practice because of the selection of patients in the endocrine clinic. Albright<sup>1</sup> states that in only one case out of 100 hirsute females without virulism can an endocrine cause be demonstrated. In those patients showing virulism an endocrine cause should always be considered as seen by the six cases in this series showing virulism where adrenal disease was present in four and ovarian disease in two cases. Four of the six cases showed elevation of the urinary 17-ketosteroid excretion. It should be noted that an elevation of the 17-ketosteroid excretion above 20 mg. per day occurred in one case of ovarian disease and in eight cases of adrenal disease, so the finding cannot be considered pathognomonic for adrenal disease alone. On the other hand, a normal value for 17-ketosteroid excretion is not uncommonly found in patients with adrenal disease showing Cushing's syndrome exhibited in two cases here.

Having identified the cause of the hirsutism in cases with elevated 17-ketosteroid excretion, one is still presented with the bulk of the females not showing virulism for which diagnostic procedures are less definite. Of the known conditions the sclerocystic ovary was associated with hirsutism in six cases in this series. This is to be expected clinically by the

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**Clinical experience with this method of paper chromatographic separation of the androgen is not yet extensive enough to merit its extensive use in diagnosis. In general, the appearance of strong peaks in Group III (more polar steroids) strongly suggests adrenal hyperactivity producing increased glucocorticoids or the exogenous administration of corticoids, while peaks in Group I strongly suggest that hirsutism is on an endocrine basis since potent androgens are being produced in excess. Case 26 shows features of both the sclerocystic ovary and adrenal hyperfunction and in this respect is similar to a case reported by others.**

**The peaks found in Group I in two hirsute patients with the Stewart-Morel syndrome suggest an endocrine disturbance in this condition.**

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Study supported in part by a grant-in-aid from the United States Public Health Service.



TABLE I  
HIRSUTE PATIENTS

<i>Case No.</i>	<i>Age</i>	<i>Diagnosis</i>	<i>Age of Onset</i>	<i>17 KS</i>	<i>Virulism</i>	<i>Obesity</i>	<i>Diabetes</i>
1	40	Cushing's Syndrome-Adrenal Hyperplasia	25	37	Absent	Present	Present
2	34	Cushing's Syndrome-Adrenal Hyperplasia	32	12	Absent	Absent	Present
47	15	Cushing's Syndrome-Adrenal Hyperplasia	11	25	Absent	Present	Present
3	32	Cushing's Syndrome-Adrenal Hyperplasia	28	20	Absent	Slight	Present
4	34	Cushing's Syndrome-Adrenal Hyperplasia	31	27	Absent	Slight	Present
5	47	Cushing's Syndrome-Adrenal Adenoma	42	14	Absent	Slight	Present
6	14	Adrenogenital Syndrome-Hyperplasia	3	50	Present	Absent	Absent
7	42	Adrenogenital Syndrome-Adrenal Adenoma	40	80	Present	Absent	Absent
8	18	Adrenogenital Syndrome-Hyperplasia	Birth	80	Present	Absent	Absent
9	35	Adrenogenital Syndrome-Carcinoma of Adrenal	15	53	Present	Absent	Present
10	40	Adrenal Rest Tumor of the Ovary	31	13	Present	Present	Present
11	28	Adrenal Rest Tumor of the Ovary	26	7	Present	Present	Present
68	38	Sclerocystic Ovary (Operated)	30	12	Absent	Moderate	Absent
22	21	Sclerocystic Ovary (Operated)	18	22	Absent	Absent	Absent
12	22	Sclerocystic Ovary (Suspected)	18	8	Absent	Absent	Absent
81	20	Sclerocystic Ovary (Operated)	16	6	Absent	Absent	Absent
82	20	Sclerocystic Ovary (Suspected)	12	7	Absent	Absent	Absent
13	27	Sclerocystic Ovary (Operated)	13	7	Absent	Absent	Absent
77	38	Stewart-Morel Syndrome	25	6	Absent	Marked	Present
14	38	Stewart-Morel Syndrome	11	7	Absent	Present	Present
27	50	Stewart-Morel Syndrome	40	8	Absent	Present	Present
89	65	Stewart-Morel Syndrome	50	7	Absent	Marked	Absent
15	65	Stewart-Morel Syndrome	45	8	Absent	Marked	Present
16	15	Familial	13	8	Absent	Absent	Absent
17	27	Familial	22	9	Absent	Absent	Absent
87	33	Idiopathic	13	9	Absent	Present	Absent
18	32	Idiopathic	25	5	Absent	Marked	Present
19	20	Idiopathic	12	6	Absent	Absent	Absent
20	34	Idiopathic	7	7	Absent	Absent	Absent
21	26	Idiopathic	16	6	Absent	Absent	Absent
23	45	Idiopathic, large colloid goiter	13	8	Absent	Present	Absent
24	25	Post poliomyelitis	24	6	Absent	Absent	Absent
25	30	Post poliomyelitis	28		Absent	Absent	Absent
26	38	Dilantic medication, convulsive disorder	36	6	Absent	Present	Absent

history of menstrual irregularity since menarche, sterility, and hirsutism without virulism. The 17-ketosteroids were elevated in only one of these six patients.

Eighteen patients in this series fall into the groups with known ovarian or adrenal disease. Another 16 patients remain who do not fall into either of these categories and in whom no gross abnormality of 17-ketosteroid excretion is demonstrable. Although some of the 17-ketosteroids are androgenic, there is a great variation in the androgen effect of the different 17-ketosteroids as determined by bio-assay. Thus, for a given value of 17-ketosteroid excretion, it is possible to have either high or low androgen value, so in hirsute patients with normal 17-ketosteroid excre-

tion, it might be of value to know the type of steroid present.

Actual identification of the steroid by chemical procedures is a tedious task and cannot be used routinely. Savard<sup>5</sup> has described separation of the 17-ketosteroids by paper chromatography. When the compounds are arranged in a list in order of migration rate, on paper, it is noted that the 17-ketosteroids fall roughly into three groups as shown in Table II. Group 1—Those migrating rapidly include compounds of the highest androgenicity and which in the female may arise from the adrenal cortex. Group 2—Those migrating in the middle range include compounds of moderate androgenicity, which arise from the adrenal cortex. Group 3—Those migrating

TABLE II

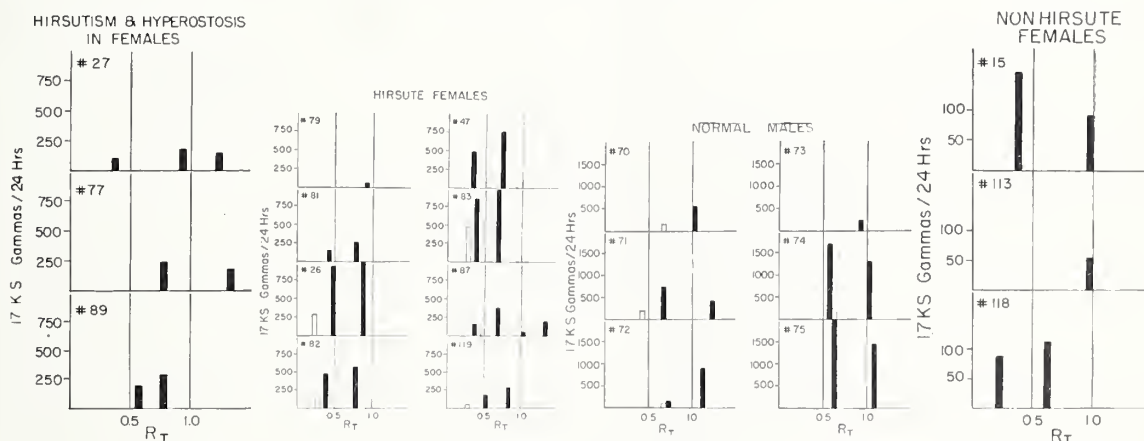
TABLE II		
17 Ketosteroid	$R_T^*$	Androgenicity**
	Group 1	
Etiocholane-3 $\alpha$ , 11 $\beta$ -diol-17-one	0.048	
11-Hydroxyandrosterone	0.10	
$\Delta^4$ -Androsten-11 $\beta$ -ol-3,17-dione	0.10	300
Etiocholane-3 $\alpha$ -ol-11,17-dione	0.26	
	Group 2	
Etiocholane-3 $\alpha$ -ol-17-one	0.70	Inactive
Etiocholane-3 $\beta$ -ol-17-one	0.70	
Dehydroisoandrosterone	0.70	300
	Group 3	
Androsterone	1.00	100
i-Androstanolone	1.5	
$\Delta^4$ -Androstene-3,17-dione	1.7	100
$\Delta^1$ -Androstene-3,17-dione	2.0	
Androstane-3,17-dione	2.5	
Etiocholane-3,17, dione	2.5	

\* According to Savard.<sup>5</sup>\*\* Amount required to equal 1 I.U. of biological activity.<sup>4</sup>

in the slow range include compounds of low androgenicity, which arise largely from conversion of hydrocortisone in the liver and contain the 11-oxy group.

Thus the order of migration on the chromatogram corresponds roughly with the androgenicity of the compounds.

Paper chromatography was carried out on urine extracts from 20 patients shown in Table III, using a system of heptane-propylene glycol and determining the amount of 17-ketosteroid material present in each spot on the paper strip (expressed as dehydroisoandrosterone). The migration of the spot was measured and compared to a standard of testosterone and an-



Figures 1, 2, 3, and 4. The 17-ketosteroids found in the urine extracts are shown in the figure in the order of their migration on paper with the system of heptane-propylene glycol. The 17-ketosteroids are expressed as micrograms of dehydroisoandrosterone. The migration is expressed as  $R_T$  on the abscissa, assuming an arbitrary migration of 1.7 for the standard androstenedione.

Solid bars indicate 17-ketosteroid in the alpha fraction and the open bars indicate 17-ketosteroid in the beta fraction.

drostenedione and the values expressed as  $R_T$  assuming an arbitrary value of  $R_T = 1.7$  for androstenedione. The steroids were then divided into the three groups at  $R_T = 0.5$  and  $R_T = 1.0$  as described above.

## Results

The results of the paper chromatographic separation of the 17-ketosteroids are shown in Figures 1, 2, 3 and 4. The mobility of each fraction is shown on the abscissa, and the amount as determined by elution is shown on the ordinate. Quantitative recovery of 17-ketosteroid material from the paper chromatograms was not complete, largely because a certain amount of chromogenic material remains near the starting point on the paper and cannot be separated by this method from the urinary pigments which also occupy about the same area. Certain uncontrolled factors within the method permit an interpretation of the mobility of the spots only over a fairly broad range; in the diagram shown it is probably only valid to consider the spots as occurring in one of three ranges of mobility described above.

In Figure 3 it is noted that considerable variation occurs among young males, but in general two spots are for the alpha fraction. It is also noted that four of the six showed a distinguishable peak in the beta fraction also, in either the low or the middle range. A definite identification of such spots cannot be made with this method, but the spot appearing in the

middle range of mobility is most likely that of etiocholanolone, which is non-androgenic, and the spot which occurs in the higher range at mobility near 1 or above is probably androsterone—which is highly androgenic. Of the peaks occurring in the beta fraction in the middle range the most likely metabolite is dehydroisoandrosterone which is mildly androgenic.

Figure 4 shows the chromatograms from non-hirsute females where there are generally much lower peaks than those found in the males and no peak in the rapid or highly androgenic range. Among the female patients, two showed a spot in the low mobility range not seen in the male group. This spot probably corresponds to an 11-hydroxy-17-ketosteroid.

It is noted in Figure 1 where the chromatograms from three hirsute patients show the Stewart-Morel-Morgagni syndrome, that two of these patients showed moderate peaks in the range well above  $R_T = 1.0$  similar to  $\Delta^4$ -androstenedione, and the other patient shows peaks not any different from the peaks of the normal female pattern. It is of interest to know that the first two of these patients had diabetes, whereas the third patient did not.

In Figure 2, cases 79, 81, and 26 are from surgically proved cases of sclerocystic ovary. Two of these showed patterns which were no different from that of the normal female, whereas the third one—Case 26—showed a fairly strong beta peak in the low mobility range and significantly higher peaks in the

TABLE III

Case	Age	Sex	Clinical Features	17 KS	
				mg./24 hr.	% Beta
27	50	F	Hyperostosis cranii and hirsutism	8.7	27
77	38	F	Hyperostosis cranii and hirsutism	7.1	10
89	65	F	Hyperostosis cranii and hirsutism	7.0	10
79	38	F	Sclerocystic ovary and hirsutism	12.1	6
81	20	F	Sclerocystic ovary and hirsutism	6.6	—
26	22	F	Sclerocystic ovary and hirsutism	22.0	14
82	20	F	Suspected sclerocystic ovary and hirsutism	7.5	11
47	15	F	Cushing's syndrome, adrenal hyperplasia hirsutism	25.0	10
83	15	F	Case 47 after cortisone treatment	22.0	13
87	36	F	Idiopathic hirsutism	9.3	4
119	30	F	Idiopathic hirsutism	6.0	10
15	50	F	Normal, non-hirsute	11.2	9
113	40	F	Normal, non-hirsute	12.0	6
118	45	F	Normal, non-hirsute	12.3	10
112	50	F	Normal, non-hirsute	10.3	7
70	23	M	Normal	9.0	10
71	21	M	Normal	8.6	10
72	22	M	Normal	9.7	7
73	23	M	Normal	7.3	3
74	21	M	Normal	12.5	12
75	22	M	Normal	10.0	9



moderately androgenic range than are ordinarily seen in female patients. This finding, in view of the fact that the total 17-ketosteroids found in this patient were high both before and after operation, strongly suggests that adrenal disease may also be present; however, no gross abnormality was noted in the adrenal at the time of operation, insofar as gross abnormalities can be identified by this procedure.

Gallagher et al.<sup>9</sup> have reported four cases of the sclerocystic ovary in which urinary 17-ketosteroid chromatograms were characteristic of hyperadrenalism. Greenblatt et al.<sup>10</sup> have reported a case of sclerocystic ovary with features of adrenal hyperfunction. Cases 82, 87, and 119 shown in Figure 2 are classed as idiopathic hirsutism because of the fact that no specific diagnosis has been made. These three cases, however, with respect to the heights of the peaks occurring in the middle range, are more characteristic of the male pattern. The strong peaks in the low range suggest that the androgens are adrenal in origin. This is consistent with an adrenal origin for these androgens. The strong peak in the low range is consistent with the increased production of corticoids and their breakdown in the liver to 11-hydroxy 17-ketosteroids. This was borne out by the 17-hydroxy corticoid excretion of 18 mg. in 24 hours. After cor-

tisone administration the only change was appearance of a higher beta peak in the lower range.

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# Kansas Medical Society

1859

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**National Conference on Rural Health**

**Wichita, Kansas**

**March 5-7, 1959**

**100th Annual Meeting, Kansas Medical Society**

**Topeka, Kansas**

**May 3-7, 1959**

# Is the Bladder Ruptured?

## *Prompt Recognition and Treatment Necessary as a Life-Saving Measure*

JOHN W. WARREN, JR., M.D., *Wichita*

In the old days, urological textbooks listed the two most common causes of ruptured bladder as injury during "drunkenness" and by being gored by a bull. Nowadays perhaps there is less "drunkenness," and definitely there is less goring by bulls, so most ruptured bladders are caused by the automobile.

Usually some other injury is also present, such as another ruptured viscus or fracture of the pelvic girdle. A ruptured viscus including the bladder necessitates immediate diagnosis and care as a life-saving measure. Since fractures usually will not kill the patient, their treatment may be deferred if more serious things are found to be present. Therefore, with any fractured pelvis, the question should be "Is the bladder ruptured?"

Often a patient with a lacerated bladder has a fractured pelvis, and pain in the lower portion of the body may be attributed to the fracture. Rupture of a full bladder frequently allows urine to escape into the peritoneal cavity, but, more commonly, the urine extravasates extra-peritoneally and dissects the peritoneum away from the abdominal wall posteriorly and anteriorly. This results in a doughy feeling of the abdominal wall and dullness to percussion. Attempts by the patient to void may be futile or productive of bloody urine. If voiding is impossible, catheterization is mandatory. With this the risk of infection is present, but if the bladder is not ruptured the infection is easily controlled. When rupture is present, immediate surgery is indicated if the patient's condition will allow it, and the possible infection is of lesser importance.

Many physicians believe that a difference between a measured amount of sterile water injected into the bladder and that removed determines the presence of a ruptured bladder. I have never been satisfied with this maneuver, feeling it is much better to obtain an x-ray of the bladder region, filling the bladder with 200 cc. of sterile 5 per cent sodium iodide solution, and to obtain a cystogram. Frequently extravasated dye is easily seen. However, an x-ray of the bladder region after the removal of the dye by catheter will always show the dye in the perivesical tissues if the bladder is ruptured. I believe this is the best means of identifying this condition.

Old urological textbooks state that patients with

bladder laceration untreated more than 72 hours will invariably die. With present day antibiotics, free use of whole blood, and adequate anesthesia, this is not always the case. Recently a man with a ruptured bladder was treated surgically eight days after his accident and is well and happy today. However, therapy should be administered as soon as the patient is able to withstand surgery so that morbidity can be held to a minimum.

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**We must all bear in mind that ruptures of the bladder will be found only if we look for them. Any patient with a fractured pelvis should be presumed to have a lacerated bladder until proven otherwise. The diagnosis is established most clearly by cystogram and an x-ray of the bladder area after opaque dye has been removed. Treatment consists of draining the extravasated blood and urine, preventing further extravasation, and repairing the bladder wall. Treatment should be instituted as soon as the patient's general condition permits.**

---

Treatment has three purposes: (1) to drain the extravasated urine, (2) to prevent further extravasation of urine, and (3) to repair the laceration in the bladder wall. These are listed according to their importance. Suprapubic exposure of the bladder is carried out with removal of the extravasated blood and urine by suction. Rubber drains are placed lateral to the bladder on the side of the rupture and into the prevesical space. A mushroom catheter is placed in the bladder to insure good drainage, and the bladder laceration is closed. With judicious use of antibiotics, blood, and supportive treatment, such patients do surprisingly well.

The following case reports are illustrative.

Case 1, F. H., 17-year-old boy, was involved in an auto accident at some distance from this city. X-rays revealed multiple fractures of the pelvis. A catheter was inserted and left indwelling after bloody urine was obtained. On the third day after the accident, he was transferred to a hospital in this city. Cysto-



Figure 1. At left, cystogram showing full bladder compressed by extravasated urine and blood. At right, bladder area after opaque dye has been removed. Note the extravasated dye in the left pelvic area.

grams were made immediately and extravasation was easily seen after the dye had been removed from the bladder (Figure 1). Surgery revealed one laceration in the anterior wall of the bladder and one in the right lateral wall. These were closed, the bladder was drained by suprapubic catheter, and rubber tissue drains were placed in the pelvis for drainage. With use of whole blood and antibiotics, his recovery was uneventful.

The next case is an unusual one in which the diagnosis was obvious.

Case 2, Mrs. D. P., 47-year-old housewife, was driving a pick-up truck on a gravel road. She lost control of the vehicle which turned over in a ditch, throwing her against a fence post. She was taken to a

local hospital where multiple fractures of the pelvis were found by x-ray examination. A large amount of blood was seen coming from a rent in the anterior wall of the vagina. A catheter inserted into the bladder obtained bloody urine. The vagina was packed, a transfusion was started, and she was brought to this city by ambulance. Surgery was done after several more transfusions to combat shock. Lacerations in the anterior and posterior walls of the bladder were found and repaired, the bladder was drained by a suprapubic catheter and the pelvis by rubber tissue drains. Her recovery was uneventful.

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### A Call from the President

"Every ten years during this century there has been a White House Conference concerned with the Nation's children and youth. The first such conference, called by President Theodore Roosevelt, was held in 1909. These conferences have contributed much to our present recognition of the importance of children and youth and their full development to our national future.

"A new decade will soon begin, and I am, therefore, directing that a sixth White House Conference on Children and Youth be held in March 1960. The rapidly changing times in which we live, and the increasingly fast pace of change, make it incumbent upon us to do everything we can to plan ahead and to see that we prepare today's children well for life in tomorrow's world. . . ."



# Neraval

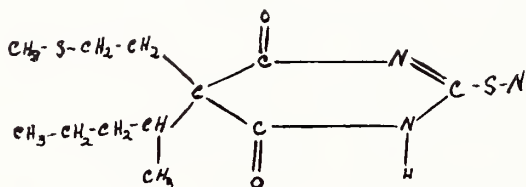
## *An Ultra-Short-Acting Thiobarbiturate for Intravenous Use*

PAUL H. LORHAN, M.D., *Torrance, California, and*  
KASUMI ARAKAWA, M.D., *Kansas City*

In the field of intravenous anesthetics the thiobarbiturates have assumed a prominent place. Methitural sodium or Neraval® is the most recently introduced member of this class of compounds.

Neraval® is the sodium salt of 5-(1-methylbutyl-5 (2-methylthio)-ethyl)-2-thiobarbiturate. The essential difference from thiopental is the presence of the methylthioethyl radical which is present in methionine, an essential amino acid which has been shown to have a protective action on the liver.

*Methitural Sodium*



Neraval® is a pale yellow, crystalline powder readily soluble in water. The aqueous solution is clear and has a pale yellow color which has a strong sulfurous odor and a pH of approximately 9.8.

### Pharmacology

The anesthetic potency of Neraval® is approximately two-thirds that of thiopental sodium. O'Herlity<sup>1</sup> and others have demonstrated that the induction dose and total dosage is 1.7 times that of thiopental. Nevertheless, it is of interest that even with the total dosage greater than that of thiopental the recovery time is much shorter.<sup>2</sup> Respiratory depressant effects were considered to be much less than those of thiopental.

### Clinical Data

Neraval® is prepared in either a 2.5 per cent or 5 per cent solution and is administered via the most suitable vein. Clinically we have used Neraval in

262 cases. A 2.5 per cent concentration was used in 169 patients and a 5 per cent concentration in 93 cases. Neraval® may also be used rectally in a 10 per cent concentration.

Neraval® was used intravenously in patients of all age groups, the youngest being 9 months and the oldest 87 years of age. Table I gives the age groups and the sex classification.

**Methitural, an ultra-short-acting thiobarbiturate, was used clinically in 262 patients of all age groups. The awakening time following use of this anesthesia is variable but clinically appears to be quicker than that of thiopental. Methitural has a sparing effect upon the respiration in that the tidal exchange and minute volume are not depressed. Because of the parasympathomimetic effect of methitural, coughing is frequently seen during induction of this anesthesia.**

TABLE I  
SEX AND AGE DISTRIBUTION

Total number of cases	262
Males	107
Females	155
	262
Under 1 year of age (9 months)	1
1-10	10
11-20	36
21-30	28
31-40	40
41-50	35
51-60	49
61-70	43
71-80	18
81-90 (oldest 87)	2
	262

From the Section of Anesthesiology, University of Kansas Medical Center, Kansas City. Since this paper was written, Dr. Lorhan has moved to California and is now with the Department of Anesthesiology, Harbor General Hospital, Torrance, California.

TABLE II  
PREOPERATIVE COMPLICATIONS

1. Metabolic		14
Obese (50 pounds or more)	9	
Diabetic	5	
2. Respiratory		17
Emphysema	7	
Asthmatic	5	
Tuberculosis	2	
Fibrosis	2	
Atelectasis	1	
3. Cardiovascular		33
Hypertension (sys. P. 200 mm. Hg. or over)	11	
Hemoglobin (below 60 per cent)	4	
Myocardial ischemia	3	
Recent coronary	3	
Syphilitic heart disease	2	
Atherosclerotic heart disease	4	
Rheumatic heart disease	1	
Arrhythmias	5	
A-V Block	3	
Atrial Fibrillation	1	
Premat. Vent. Cont.	1	
4. Miscellaneous		8
Cirrhosis of liver	1	
Uremia	1	
Cachexia (carcinomatosis)	1	
Senile dementia	1	
Eclamptic	1	
Glaucoma (acute)	2	
Cortisone therapy	1	

No attempt was made to select only good risk patients. In Table II are listed all the pre-operative complications. Neraval® was used in five asthmatic patients. One patient who had severe asthma developed an acute asthmatic attack during induction of anesthesia. In four others the anesthetic was in-

duced smoothly and quickly and the patients underwent surgery without difficulty.

Neraval® may be used as the sole agent in minor surgical procedures such as dilatation and curettage. This is not desirable, and it is recommended that a supplemental agent such as nitrous oxide (70 per cent) (30 per cent) oxygen be used. For relaxation a muscle relaxant may be used. Table III lists the number of patients in whom a supplemental agent and a relaxant were used.

The duration of anesthesia varied from 12 minutes to 6 hours and 45 minutes. The majority were under two hours. Table IV lists the duration of anesthesia and the number of patients in each group.

Neraval® was used in an unselected group of surgical cases. The type of cases may be seen in Table V.

In this series induction dose averaged 410 mg. with an induction time of four minutes. The total average dose was 888 mg., and the operating time was approximately 120 minutes. The largest amount

TABLE IV  
DURATION OF ANESTHESIA

<i>Time in Minutes</i>	<i>No. of Cases</i>
1-15 (shortest 12 min.)	5
16-30	39
31-45	23
45-60	31
61-90	47
91-120	37
121-150	22
151-180	23
181-210	5
211-240	6
241-270	12
271-300	2
301 plus (longest 405)	10
	262

TABLE III  
SUPPLEMENTAL AGENTS USED WITH  
NERAVAL®

Neraval® alone	11	
Nitrous oxide-oxygen	215	
Nitrous oxide-ether-oxygen	17	
Cyclopropane	16	
Fluothane®	3	
	262	
Relaxant		97
Succinylcholine	75	
Flaxadil	20	
d-tubocurare	2	

given was 2,750 mg. for an operation lasting approximately four hours. In 37 dilatation and curettage patients in whom the same agents were used, we averaged 426 mg. for an induction dose time of 3 minutes and a total dosage of 758 mg. with an average operating time of 29 minutes. These patients required, on an average, 5.4 mg. per pound per minute.

The majority of these patients were responding to their names upon leaving the operating room. The patient with 2,750 mg. was awake, rational, speaking coherently, and well oriented as to time and place in two minutes. However, a second individual who

TABLE V			
I. General Surgery			99
Head and Neck		3	
Thoracic		23	
Extrapleural	18		
Intrapleural	5		
Abdominal		44	
Upper	19		
Lower	25		
Abdominal Extra		13	
Extremity		11	
Miscellaneous		5	
II. Gynecology			70
Abdominal		10	
Pelvic		7	
Vaginal		52	
Caesarian		1	
III. Ear-Nose-Throat-Dental			28
Mastoidectomy		9	
Tympanoplasty		4	
T-A		3	
Caldwell-Luc		3	
Laryngoscopy-Esophagoscopy		2	
Laryngectomy		1	
Exploration of facial nerve		1	
Myringotomy		1	
Excision Nasal Tumor		1	
Excision Pharyngeal Cyst		1	
Stapes Mobilization		1	
Dental Extraction		1	
Genito-Urinary			18
Panendoscopy		12	
Urethrotomy		2	
Prostatectomy		1	
Nephrectomy		1	
Cystolitheotomy		1	
Penile Biopsy		1	
Neuro-Surgery			5
Arteriogram		2	
Craniotomy		1	
Ligation Carotid Artery		1	
Meningocele Repair		1	
Plastic			31
Skin graft		12	
Dressing change		3	
Plastic Revisions (graft, scars, etc.)		3	
Tendon Repair		2	
Neck dissection, exc. of cyst		4	
Resection of Mandible and Biopsy		2	
Parotidectomy		1	
Glossectomy		1	
Resection of Palate		1	
Excision Ca. nose		1	
Revision of Stenotic Nose		1	
Orthopedic Surgery			11
Closed reductions		5	
Arthrodesis		3	
Excision of ganglion		1	
Excision of malleolus		1	
Wire nailing of leg		1	
			262

received a total dosage of 1,050 mg. without a supplemental agent for a 55-minute operation was not completely oriented for 80 minutes following surgery. The awakening time in nine elderly obese patients was prolonged and averaged approximately 56 minutes. The average total dosage in these patients was 1,308 mg. with an average operating time of 73 minutes.

During induction of anesthesia coughing was noted in 15 patients, laryngospasm in three, vomiting in four, and hiccoughing in three patients.

During anesthesia the respiratory rate did not vary more than four per minute and the tidal exchange appeared to be normal. The blood pressure and pulse remained fairly stable. A fall in the systolic pressure of 40 mm. Hg. or more occurred in 50 patients. This was mostly in general surgical patients in whom blood loss was excessive.

Postoperative complications were minimal. Immediate postoperative vomiting was seen in 12 patients, and over 48 hours in one patient. Table VI lists the postoperative complications.

TABLE VI POSTOPERATIVE COMPLICATIONS		
1. Vomiting		13
a. More than 24 hours	1	
2. Nausea		3
3. Hypotension		2
4. Hiccough		1
5. Mentally confused		2

One death occurred 24 hours after surgery in a 67-year-old male who had had a splenectomy for hemolytic anemia. He received a total dosage of 250 mg. of Neraval® supplemented with cyclopropane. During surgery his blood pressure dropped from a 210 mm. Hg. systolic pressure to 90 mm. Hg. and his diastolic pressure from 90 mm. Hg. to 70 mm. Hg. Autopsy showed an acute myocardial infarction.

Venous irritation was not noted with a 2.5 per cent concentration. Three patients complained of pain and burning during the induction with a 5 per cent concentration. No evidence of phlebitis was seen postoperatively.

Neraval® and ultra-short-acting thiobarbiturate clinically possesses certain desirable attributes. The awakening time, as determined from cessation of anesthesia to the time patients are able to understand spoken commands and oriented as to time and place, is definitely shorter on a time basis than that of thiopental. The incidence of nausea and vomiting is mini-



mal. Due to its parasympathomimetic action the incidence of coughing during induction is higher than when thiopental is used.

Neraval® clinically seems to have a sparing effect on the respiration. The tidal and minute volumes were studied in three patients. The average respiratory rate before surgery was 16, the tidal volume 265 cc. and the minute volume 4,225 cc. Following induction with Neraval® the respiratory rate averaged 20 per minute, tidal volume 355 cc., and minute volume 6,900 cc. At the end of surgery the respira-

tory rate was 19 per minute, tidal volume 410 cc., and the minute volume 7,670 cc. per minute.

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# Nursing Care

## *Analysis of Need for Nurses and Program Proposed to Combat Shortage*

ROBERTA E. FOOTE, R.N., M.A., *Topeka*

Probably everyone would agree that nursing care, like medical care, is a service valued by the American people and by the people of Kansas. We would have to agree, too, that many people in Kansas are not receiving as much nursing care as they need, nor is it always of the highest quality. We know some of the reasons why this is true.

### Reasons for the Nursing Shortage

1. More people can afford hospital care and are receiving it. From 1941 to 1956, the number of Americans covered by hospital insurance increased from 12,312,000 to 115,949,000 (Figure 1). It is estimated that 123,000,000 were covered in 1957.<sup>1</sup>

2. New hospital beds have been made available. In Kansas, new general hospitals or new wings have been built to accommodate 3,350 additional patients since 1947. Facilities for 586 more patients were under construction at the beginning of 1958.<sup>2</sup> Other new general hospitals or wings are being planned. These figures do not include the replacement of any old facilities nor any construction of federal hospitals.

3. There has been a demand for nurses in new fields. When we were children, our family doctors

did not have nurses in their offices. Although by far the largest number of registered nurses in Kansas are still employed in hospitals, the next highest group is employed by physicians. In the physician's office, a nurse can give excellent and satisfying service both to the physician and to his patients. This demand for her service, however, like the demands of other groups such as industry, makes it even harder to staff those new hospital beds. The fields of work of active registered nurses in Kansas are shown in Figure 2.<sup>3</sup>

4. Opportunities in other fields make it difficult to recruit enough young people into nursing. For example: Two young friends of mine were married soon after graduating from high school in 1956. The wife obtained a position as a secretary at a salary equal to what we were paying our beginning public health nurses at that time. Her husband was driving a milk truck and received a salary equal to that of the highest paid public health nurse in the state, which requires a master's degree plus years of increasingly

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**The distribution of nurses, like the distribution of physicians, is a subject that is receiving attention nationally and on a state basis. An outline of the attack on nursing problems in Kansas is presented.**

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Miss Foote is director, Public Health Nursing Section, Division of Local Health Services, Kansas State Board of Health, and chairman, Committee to Study Nursing Needs and Resources in Kansas.

### GROWTH OF HOSPITAL, SURGICAL, AND REGULAR MEDICAL EXPENSE PROTECTION

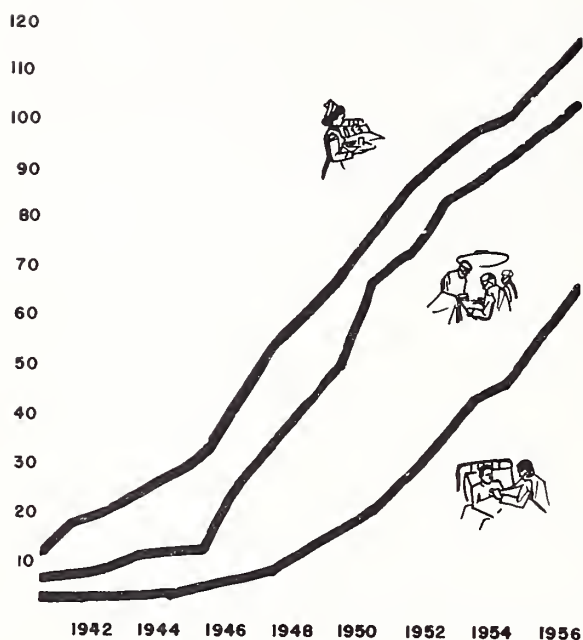


Figure 1

responsible experience. "Why spend the time to become a registered nurse?," many people ask.

5. Nurses are carrying added responsibilities. They are doing many things formerly done only by physicians and many things which were not being done at all because they had not yet been discovered. Notes from a talk given by Lucile Petry Leone illustrate the need for the nurse to be a skilled member of a skilled team.<sup>4</sup> She needs a scientific background to understand and carry out the indicated treatments. In addition to being a kindly person, she needs a scientific understanding of the dynamics of human behavior and of how she may use herself constructively in order to give the patient the emotional support he needs.

"Mr. Holt, age 26, entered our unit on July 4, with great hope and much apprehension. Our first aim was to help him adjust psychologically, as well as physically, to the scientific environment and his medical condition.

"The first week, information about his defect and his physical condition was obtained. The physician talked with the patient and Mrs. Holt about the operative procedure and about the risks involved. Despite the danger, both Mr. and Mrs. Holt felt that the operation was desired. The hospital chaplain spent much time with the Holts during this period also, at their request.

"Before surgery, Mr. Holt was taught to deep

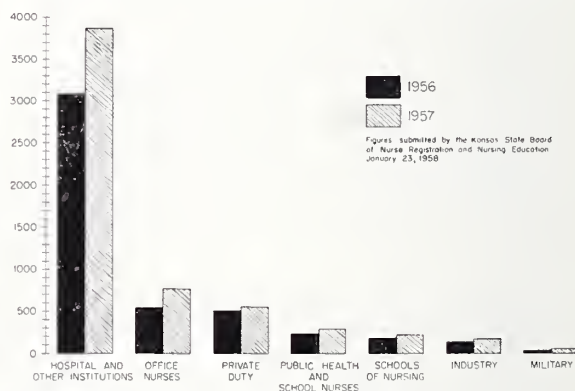
breathe and cough as he would need to after his operation. He practiced breathing in the oxygen croupette. The other machines which would be in his room postoperatively were explained to him. There was the electrocardiogram machine, the portable x-ray, the chest suction, mucous suction, emergency cart for cardiac resuscitation, tracheotomy set, venesection set and the oxygen croupette.

"Mr. Holt was accompanied to the operating room by one of the nurses he knew, and the surgeon talked with the family after the operation was over. When Mr. Holt returned to the ward, his needs included attention to two intercostal tubes; two simultaneous intravenous injections; antibiotics; vital signs including blood pressure, oxygen flow and suctioning. The nurse needed to assist with x-rays, electrocardiograms, and catheterization. He was turned hourly and encouraged to cough and to do deep breathing exercises. The nurse also prepared and administered medications for pain and restlessness.

"The demand for nurses who are prepared to give this type of care is growing daily and constitutes a challenge to nursing education to help meet this need.

"People need deep understanding and expert care. And to illustrate what is meant by understanding care, let us look at Mr. Clark. He has arthritis at home. The Public Health Nurse visits him daily to give his bath. Mr. Clark has excruciating pain when he is moved. Mrs. Clark says that when Miss A. comes to give him his bath, she can hardly calm him down for five or six hours afterwards. When Miss B. comes to give him his bath, he is usually composed and sleeps a little while afterwards. Both nurses give expert care. Mrs. Clark says that when Miss B. comes to the part that hurts the worst, the turning, she always says, 'Now let me know when you are ready to turn,' and sometimes she waits as much as ten min-

### SUMMARY OF SELECTED FIELDS OF WORK OF REGISTERED PROFESSIONAL NURSES IN KANSAS



Figures submitted by the Kansas State Board of Nurse Registration and Nursing Education January 23, 1958

Figure 2

## The Growing Supply of Professional Nurses

1910-1956)

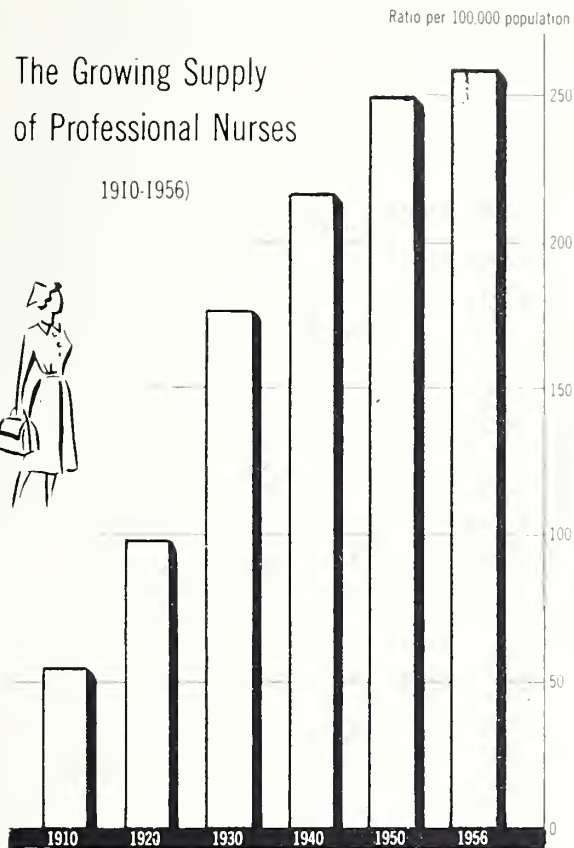


Figure 3

utes. Miss B. knows that the doctor feels that Mr. Clark must learn to live with his pain. She knows that Mr. Clark must feel that it is something within him and not forced on him from the outside. She

### NURSING PERSONNEL IN HOSPITALS

1950-1955

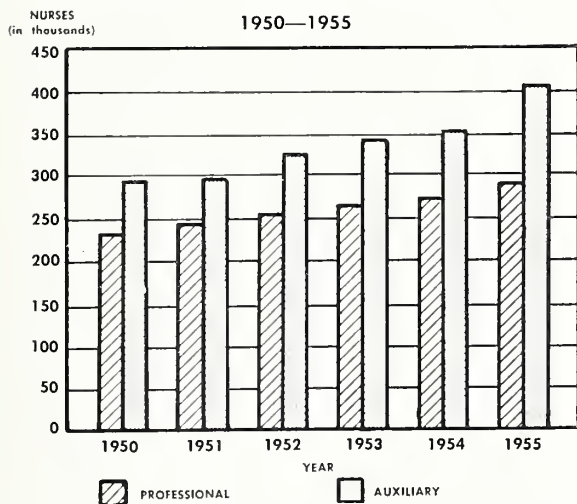


Figure 4

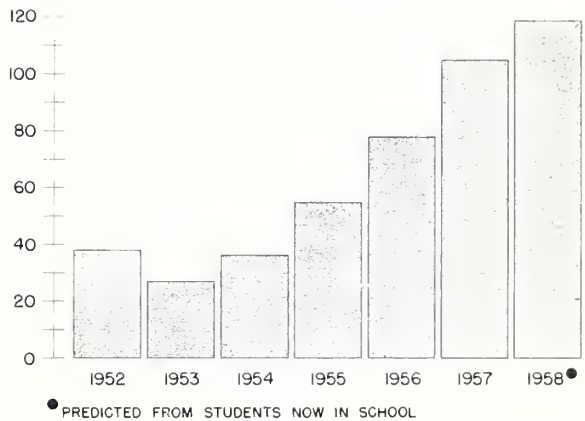
applies that principle when she waits for him to say, 'Now I am ready to bear it.' "

### Nursing Efforts to Meet the Needs

Nurses have tried to meet the needs for their service. Figures 3, 4, and 5 indicate the steadily increasing ratio of professional nurses to population from 1910 to 1956 and the small but steady increase in the number of registered nurses in hospitals from 1950 to 1955.

In order to make these increases possible, a continuous effort to recruit students and to prepare faculty to teach them has been necessary. The number of students enrolled in state-approved schools of nursing in the United States has increased from 85,156 in 1940 to 109,904 in 1956, an increase of over 20 per cent.<sup>7</sup> In Kansas, while the number fluctuates from year to year, there has been a consistent increase in nursing graduates from about 350 in 1947 to over 450 in 1958.<sup>8</sup>

### PRACTICAL NURSE STUDENTS GRADUATING FROM ACCREDITED SCHOOLS OF PRACTICAL NURSING IN KANSAS FROM 1952-1958



● PREDICTED FROM STUDENTS NOW IN SCHOOL

Figure 5

Realizing that it would not be possible to prepare enough professional nurses to give all of the care to increasing throngs of patients, Kansas nurses have worked with other groups to establish four schools of practical nursing: The Florence Cook Department of Practical Nurse Education, Department of Nursing, K. U. Medical Center; the Wichita Public School of Practical Nursing; the Topeka Public School of Practical Nursing, and the Dodge City Public School of Practical Nursing. Figure 5 shows the growth of practical nurse students from the organization of the Florence Cook Department in August, 1951, to the spring of 1958.<sup>9</sup>



### Needs Still To Be Met

In spite of our best efforts, however, many nursing problems remain. Physicians and hospital administrators are concerned about nursing service and nursing education. The medical auxiliary is concerned because the students they sponsor do not return to work in the hospitals where they were trained. Blue Cross-Blue Shield has been worried about finding nurses to staff the home care programs they wish to sponsor. (However, Mr. Sam Barham, executive director, recently stated his conviction that nurses can be found for this service when the rest of the team is ready.) The Kansas State Board of Health is worried because fully qualified public health nurses cannot be found to fill vacancies either on the state or local level. The K. U. Department of Nursing is worried because it has been impossible to recruit a faculty member qualified to help prepare public health nurses in Kansas. Nurses themselves are concerned about all these problems which prevent people from having the best nursing care. Therefore, the boards of our three nursing organizations, the Kansas State Nurses' Association, the Kansas League for Nursing, and the Kansas State Board of Nurse Registration and Nursing Education, decided to find out what other people are doing and what we can do to solve them.

### How Other States Are Solving Their Nursing Problems

The nurses learned that since 1946, all but seven of the 48 states have conducted state-wide nursing surveys. Through these studies they have gained information which is helping them meet their needs.

In Nebraska in 1951, for example, facts brought out in the survey indicated that the shortage of professional nurses would be doubled by 1960; that a smaller per cent of high school girl graduates enter nursing schools in Nebraska than for the country as a whole; and that 30 per cent of the students drop out before graduation. Better recruitment, more scholarships, and a study of how nursing students might make better adjustments through an adequate counseling program were among the 27 recommendations for action. The study of withdrawals may prove to be the most constructive of these Nebraska recommendations since well-selected students in good nursing schools who find satisfaction in their work are the best recruiters. A quotation on the summary report states: "Action without study is fatal; study without action is futile."<sup>10</sup>

Some states have learned about their need for more licensed practical nurses and have used this information as a basis for developing schools. With four

schools already established in Kansas, we need to know how and where these nurses are being employed and whether more schools for licensed practical nurses are needed.

Some states have learned of the need for more postgraduate nursing education and have taken steps to solve this problem. This is one of the urgent problems we have in Kansas. A number of our nursing school faculty members are working on their master degrees in other states. It is not possible for them to obtain an advanced nursing degree in Kansas.

### Proposed Study of Nursing Needs and Resources in Kansas

The boards of the three nursing organizations (the Kansas State Nurses' Association, the Kansas League for Nursing, and the Kansas State Board of Nurse Registration and Nursing Education), after considering the results of surveys in other states, believed that finding out more facts about nursing in Kansas would be the first step in determining answers.

In January, 1957, therefore, they requested help from the Public Health Service and appointed a working committee to make plans for a survey of nursing needs and resources in Kansas. When Miss Eleanor Stanford, nurse consultant, Division of Nursing Resources of the Public Health Service, came to plan with us in response to this request she said, "Research may not produce more nurses but it can produce nurses with more time." We feel sure that she was thinking of more time to give the kind of nursing care which physicians want for their patients, which nurses would like to give, and which patients would find satisfying.

### Progress in Getting the Survey Started

Since April, 1957, when the Committee to Study Nursing Needs and Resources in Kansas first met, much has been accomplished.

During the fall of 1957, the survey was discussed at the annual conventions of the Kansas State Nurses' Association and of the Kansas League for Nurses. The Kansas State Nurses' Association voted to assess each of its members one dollar for each of the next two years. This will amount to more than \$6,000. By August 30, 1958, \$1,700 had been turned over to the committee and more was available. The Kansas League for Nursing endorsed the survey and appointed a committee to explore how it could help. The Kansas State Board of Health contributed \$1,100.

A fund raising committee was appointed of which

Mr. Waldo Wilmore, executive secretary of the Kansas Tuberculosis and Health Association, is chairman. Plans are rapidly becoming concrete enough to present to those groups having a stake in nursing and wanting to help underwrite the survey budget for 1959.

Many committee meetings have been held. Three of these were with allied professional and community groups. In addition to the nurses, those present or invited included representatives from the following 28 professional groups, official and voluntary agencies, and leading state-wide organizations.

Those in italics have been represented at one or more meetings. Their representatives have expressed a great deal of interest and have made excellent suggestions to guide the technical nursing committees.

Kansas Medical Society

*Women's Auxiliary Kansas Medical Society*

*Kansas Hospital Association*

*Blue Cross-Blue Shield*

*Kansas State Board of Health*

*Kansas State Department of Social Welfare*

*Home Economics Division, Kansas State College*

*State Board of Vocational Education*

*Kansas Federation of Licensed Practical Nurses*

*Kansas State Student Nurses' Association*

*American Red Cross*

Kansas Association for Mental Health, Inc.

Kansas Division, American Cancer Society

*Kansas Heart Association*

*National Foundation for Infantile Paralysis*

*Kansas Tuberculosis and Health Association*

*American Legion Auxiliary*

Kansas Council of Churches

Kansas Congress of Parents and Teachers

*Kansas State Teachers' Association*

*Kansas Council for Children and Youth*

*Kansas Federation of Women's Clubs*

*Topeka Council of Social Agencies*

Kansas Conference of Social Work

Kansas Foundation for Private Colleges

Kansas State Chamber of Commerce

Kansas Legislative Council

Kansas State Department of Labor.

The following objectives have been adopted for the survey *TO PLAN FOR BETTER NURSING BY:*

Finding the existing number of nursing personnel in all areas of nursing service and nursing education in various parts of the state.

Trying to determine how many nurses and auxiliary nursing service personnel are needed.

Finding what preparation nurses have for their current jobs and whether this preparation is adequate; if not, what preparation is needed and how can it be obtained?

Selecting areas of nursing which need further study, such as nurse utilization or a study of staff turnover.

Arranging ways in which the nurses, allied professions, and other people in the community can work together to meet needs for nursing service and nursing education which are brought out by the survey.

Office space has been provided by the Kansas State Board of Nurse Registration and Nursing Education. Mrs. Carmelita Smith, formerly psychiatric nursing consultant with the Division of Institutional Management, Kansas State Department of Social Welfare, has been working part time as the survey director since February 26, 1958.

Ten technical committees from the various fields of nursing each held two meetings in Topeka during the spring of 1958 to make recommendations for collecting the necessary data and to formulate questionnaires which were sent out during the fall of 1958.

Miss Eleanor Stanford, nursing consultant from the Public Health Service, came to Kansas again in April and in November to help evaluate progress, complete questionnaires, set up a timetable for completing the study, and tabulate data. We hope to complete the fact finding and be ready to write the report by January 1, 1959. After the facts are known, recommendations and plans for implementing them will be made and discussed with the interested professional and consumer groups. It is only as we find ways to act on the recommendations that our goal of providing better nursing for Kansas will be realized.

Nurses do not believe that federal funds should be spent to survey nursing needs. We do think that state-wide surveys such as this, using all of the information already collected and finding what is not available, can be useful as a basis for action. We believe that it is the responsibility of the nursing profession to plan cooperatively with the community to meet the need for nursing service and nursing education. We will continue to welcome questions, comments, and suggestions from physicians, our other co-workers, and community groups.

Nurses share the hope of a Chinese ambassador who was presiding over a committee of the World Health Organization. To open the meeting he said, "I hope that when our deliberations have been completed, they will be like a well-blended omelet. If not, they may turn out to be only a collection of hard-boiled eggs."

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## Maternal Mortality Report

The patient was a 33-year-old white primipara who died in a general hospital with clinical diagnosis of endometritis due to term pregnancy with fetal death in utero three to four days prior to labor. An autopsy was obtained, the autopsy diagnoses including "endometritis, necrotizing, acute; acute inflammatory reaction in the adnexa; early necrosis of the liver."

The medical history was not significant and the patient received good prenatal care. There were no complications prior to hospitalization. She went two weeks over her calculated due date, and on the last visit to the office the fetal heart was audible. On the following day the patient experienced sharp cramping pains and was admitted to the hospital with ruptured membranes. A slight bloody show and loss of dark fluid were noted and a diagnosis of fetal death was made. Labor failed to develop and the following day, because of the development of an acutely distressing family situation, the patient insisted upon dismissal from the hospital undelivered. Although it was not called to the attention of the physician at the time of her dismissal, the record showed her temperature to be 99.2 degrees.

Four days later the patient developed sudden chills and fever and she was readmitted to the hospital appearing cyanotic and seriously ill. At that time her temperature was 104 degrees and she was having irregular contractions. Consultation was obtained and adequate doses of antibiotics were administered. The red count and hemoglobin were not significantly altered.

On the following day she went into labor and was delivered of an infected stillborn infant weighing 5 pounds, 4 ounces. Her labor was considered to be normal and the blood loss immediately attending delivery was estimated at 500 ccs. Shortly after delivery, however, the patient went into profound shock and expired rapidly despite the administration of 2,000 ccs. of blood, 1,000 ccs. of Dextran, oxygen, and other supportive measures.

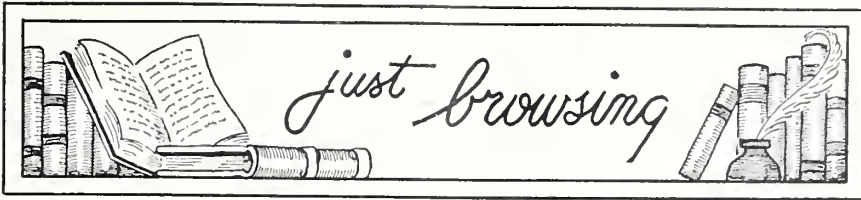
Committee opinion: It was felt that the cause of death was a combination of overwhelming sepsis and shock due to hemorrhage. Initially several seemingly inconsequential factors brought about the sequence of events leading to death and, therefore, initial responsibility must be shared by the patient, the nurse in attendance, and the physician. The patient's insistence upon leaving the hospital against advice undoubtedly precipitated the terminal illness. The nurse who noted the slight elevation of temperature undoubtedly considered it not worthy of reporting to the physician, but it must be assumed that it was the earliest indication of impending trouble. The physician in turn was placed in a position of distressing but inescapable responsibility. Had uterine culture been taken at the time of the first hospital discharge (certainly an unlikely and unusual procedure), and had antibiotics been started, the outcome might have been different. Had the uterus been emptied earlier, the subsequent events would probably not have transpired.

The majority of members felt the physician could not reasonably be censured; since the temperature elevation at the time of dismissal was not ordinarily significant, that the routine use of antibiotics was of doubtful desirability, and that the induction of labor at the time of first admission was not clearly called for at that moment.

Classification: Obstetric death, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.





Today we have so much hurrying to do, and we hear and see so much about the commercialized aspect of the Christmas season, that we are apt to lose sight of the true meaning and significance of Christmas. There are, however, a few reminders of the real Christmas spirit, and it is well if we take a little time from our busy schedules to thoughtfully contemplate the season we are entering. Perhaps it will be more meaningful as a result.

"... numerous indeed are the hearts to which Christmas brings a brief season of happiness and enjoyment. How many families whose members have been dispersed and scattered far and wide, in the restless struggle of life, are then reunited, and meet once again in that happy state of companionship and mutual good-will, which is a source of such pure and unalloyed delight, and one so incompatible with the cares and sorrows of the world, that the religious belief of the most civilized nations, and the rude traditions of the roughest savages, alike number it among the first days of a future state of existence, provided for the blest and happy! How many old recollections and how many dormant sympathies, Christmas-time awakens!" (Charles Dickens)

"A Greeting. I salute you: There is nothing I can give you which you have not; but there is much, that, while I cannot give you, you can take... No heaven can come to us unless our hearts find rest in it today. Take Heaven... No peace lies in the future which is not hidden in the present. Take Peace... The gloom of the world is but a shadow; behind it, yet within our reach is joy. Take Joy... And so at this Christmas time, I greet you, with the prayer that for you, now and forever, the day breaks and the shadows flee away." (Fra Giovanni, A.D. 1513)

Many foreign lands have interesting customs and traditions in association with the Christmas season. In England, "on Christmas Eve the yule log is brought inside and placed in the big fireplace. According to custom, each person in the family must sit upon the log and salute it before it is lighted to assure good luck for the household in the new year." In Mexico a pretty custom "... is the game of the 'pinata' in which the children find great joy. The 'pinata' is an elaborate and colorful earthenware bowl resembling a face or an animal, filled with fresh fruits, peanuts, candy and good-luck charms. When all is ready, the children gather around in a circle and one after another is blindfolded and has his turn at breaking the 'pinata.' After many attempts, the 'pinata' is finally broken—then the scram-

ble begins, and each child can keep whatever he manages to find."

In Czechoslovakia "Christmas... means the ending of all quarrels and the beginning of a new year among friends. It is the custom for all people to visit their friends and foes and forgive any misunderstandings that may have arisen during the year."

"... to provide food and water for St. Nick's good white horse on Christmas Eve, the little children of Holland stuff their clean wooden shoes with hay and carrots and place them on the window sills. A dish of water is set alongside them. The children are up early on Christmas morning... and... see that St. Nick has replaced the hay and carrots with small gifts, toys and many other surprises."

Germany has given us many customs related to Christmas, among them "Kris Kringle," the most loved of all carols "Silent Night, Holy Night," hand-carved toys, and "the Christmas Tree—which, decorated in utmost secrecy, is lighted on Christmas Eve and is a never-failing source of enchantment and excitement for young and old alike."

"Many of Russia's traditions have been lost and forgotten, but family reunions and parties for the children during the Christmas season still remain. At these reunions, an old custom—the Five Piles of Grain—is enacted. At midnight, a sleeping hen is taken from the roost and brought into the warm kitchen. On the floor are five piles of grain, each one representing a legend of the five fates: Wealth, Poverty, Death, Marriage and a life of Single Blessedness. While the hen is still sleepy, its befuddlement causes great merriment and laughter, but as the hen awakens and senses the grain, she selects the piles, one by one and begins to eat."

"One of the most charming customs of Norway is the remembrance of the animals and birds, since they were the only ones present at the birth of the Holy Babe. The farm beasts are carefully tended, and the cattle are given extra fodder. But the most beautiful of all the customs is saved for the birds. The especially gleaned sheaf, saved from the fall harvest, is placed on top of a tall pole in the yard—and on Christmas morning, every gable, gate-way and barn door is decorated with a bundle of grain—the birds' Christmas dinner."

When we extend a true "Merry Christmas" to our fellow men, what we mean, and what we are hoping for, is "Peace on Earth, Good Will Toward Men." —O.R.C.

Quotations from *Christmas Ideals* (Ideals Publishing Company) 1947.

## PRESIDENT'S PAGE

DEAR DOCTOR:

Christmas, for most of us, is a time for memories. Do you recall the days when the tree and a few folding paper bells and hung stockings were the extent of the decorations? And they were put up on Christmas Eve to remain until after New Year's. Tallow candles, fastened to the branches with spring clips, were a constant fire hazard, but as their brief glow warmed the fir needles their fragrance filled the room—and a bucket of water nearby gave some assurance that disaster could be averted.

More often than in recent years there was snow. Runners for the buggy would convert it into a sleigh, to which sleds would be tied in happy confusion. And Santa Claus at the Sunday School party was the initial event of the season. Gifts were simple and useful and cards were few, but they were very personal. And as the family sat together around the lighted tree and sang carols, some of the mystery and love and beauty of life were felt in each heart with a poignancy not of words.

So it was in those days of long ago, and last Christmas, and shall be in this one, too. For Christmas is timeless. At this season of the year the ghosts of Christmas Past, Christmas Present, and of Christmas Yet to Come stir in the hearts of all men of good will. And in the miracle of the Son of Man, the souls of men are renewed.

Mrs. Butcher joins me in wishing each of you and those near to you a Merry Christmas, and health and good cheer in 1959.

*Very sincerely,*

A handwritten signature in cursive script that reads "Thomas P. Butcher M.D." The signature is fluid and elegant, with a large initial 'T' and a stylized 'B'.

## EDITORIAL COMMENT

### The One Hundredth Christmas

A centenarian was interviewed by the press. He said, "All my life they told me the first hundred years were the hardest. Let me tell you something. This second hundred is starting out terrible."

Even at that, there is something to be said for age. The young are impatient and frightened. Time alone brings understanding and a sense of security.

Only the centenarian can see back 100 years. When others dread the future, he remembers the terrible past. He has no fear of the days to come.

He is not drawn aside in useless skirmishes but conserves his strength in conquest of what is abiding.

He seldom cries at adversity for he has bled and shed tears in the past. During his youth he mastered fear and today has no respect for defeat.

His is disdain for the faddist and for those things which sway crowds because he has seen them before and he remembers what youth cannot have learned.

Only the experienced traveler can stand aside watching the frenzied, aimless mobs go by. He knows one day he will step aside again when they come back as frenzied and aimless as they went.

An organization may mature in the same way as an individual and achieve a security and a confidence from years of embattled existence. Whoever reads the history of this Society is quickly alert to this fact—that the petulant child mastered its foibles and has grown to become an influence upon society.

This is the 100th Christmas season for this Society—a stable, uncompromising, serviceful organization, living as a patriarch among men, serving their needs, administering to their suffering, caring for their illness.

So to each of you, almost 1900 physicians who are this Society, is wished a Merry Christmas for yourselves, your families, and friends. On the eve of this 100th birthday, may you be congratulated for your achievements and may you be challenged by success and adversity alike to make the next 100 years surpass everything that has gone before.

### Ethics for the Doctor's Wife

*Editor's Note. The following paper was written by Dr. David E. Gray, Topeka, president of the Shawnee County Medical Society, for presentation before a recent meeting of the Woman's Auxiliary to the Shawnee County Medical Society.*

It would be a formidable—in fact, impossible—task to formulate a code of ethics for physicians' wives in these few minutes. It occurred to me, however, that some of you have never seen the code of ethics which is supposed to apply to your husbands. It followed that we might take each article and see what it demands of the wife. There could be no code applying to her that was not based on that which regulates the existence of her husband. In order to approach it, however, I want first to examine quickly the elements involved in this relationship.

First, let us consider the practice of medicine. This phrase brings some fantasy to the mind of each of you and I dare say there is a little variation in each. There are certain similarities too, I am sure. At least we all tend to think rather well of it—the sort of approval which gives us the privilege of criticism individually but unites us in a common defense against outside criticism.

That the laity can be highly critical of the profession we all know too well. It seems to me this antagonism is composed of several elements which may seem fairly obvious—though that does not make them easier to tolerate. Most patients still look upon the physician as something of a witch doctor. Not understanding the language or methods, the patient submits to treatment only because he is driven by pain, ill-feeling, or fear. While he is well, he rejects any contact with the doctor. When he becomes ill, he wants medical attention immediately. When he recovers, if he does, he is frustrated by ambivalence: his gratitude conflicts with his resentment at being obligated. He feels that the physician somehow has taken advantage of him by working some hocus-pocus upon him and then expecting remuneration.

The highly-lauded "old time" physician established his rapport with the family because he had to rely on personal contact and promotional psychology since he lacked the more definitive therapeutics of today. That is not to say that we could not profit by doing the same, but today the physician applies impersonal laboratory procedures, streamlined history-taking, and localized examination, then applies a more standardized and often expensive treatment.

Despite such changes, the practice of medicine is still excessively demanding of time and energy. It is capricious and unpredictable in the sense that its demands are not consistent or capable of organization beyond a certain point. The physician who boasts that he can control and regulate his practice to his complete satisfaction is no physician but a businessman selling a commodity. The chief reward in the practice of medicine is the satisfaction of the needs of the individual—and I mean the physician, not the patient.

The practice of medicine seems to us more regi-



mented than ever before. The physician who deviates too widely from the accepted diagnostic and therapeutic pattern is at least suspect if not, in fact, in danger of legal action. I am sure, however, that medicine will never submit to complete standardization for at least two reasons: first, we shall never reach a final solution of all man's health problems—each transient victory leads only to new endeavors. Second, the individuality of the physician will never be so suppressed as to permit unanimity of opinion. The nature of medical study encourages diversity of opinion. So long as we assure opportunity for expression of thought, we need have no fear of excessive control. The greater danger lies in failing to see the direction in which the world is moving and adjust our precepts to the changing scene.

Now, what of this man who is a saint to some and a sinner to not a few? A child is in terrific need of reassurance (on his own terms, of course) that he is loved and has his secure place. In order to assure himself of this, he goes through a period in which he feels such strong affection for his fellow-men and desire to serve them as will assure his being perpetually loved in return. Do-goodism permeates the soul of the early adolescent, and many make the inviolable resolution to dedicate themselves to the saving of the minds, bodies, or souls of their fellows.

We are concerned with a group of these individuals to whom disillusionment comes after the point of no return. The average doctor was at no time more dedicated than in his pre-medical training. This selfless renunciation of the struggle for material wealth in favor of bringing health to the suffering multitudes reaches its peak somewhere about the sophomore year of medical school and is manifested by the excessively casual dangling of the stethoscope from the coat pocket. From this time on there is more or less disenchantment, but with rare exceptions our hero never completely extricates himself from the web of altruism. He finds that brilliant diagnosis consists of prosaic bits of observation compounded with the analysis of various uninviting samples of organic substance. He finds that sooner or later the thrill of ushering in a tiny pink and blue mortal is tempered by the nauseating stupor of fatigue or dampened by the facefull of water when the membranes rupture unexpectedly. He finds that this Hippocrates in the long white coat whom he dreamed of emulating is, for all his technical mastery, a lecher or a hypocrite—or just a plain human being after all—no god lately come to earth to strew healing wherever he walks.

Now he finds that all is not black or white—that there are confusing shades of gray. Doubt enters in, for he has reached the point where medical behavior must be viewed in the fluctuating light of ethics,

which poses the question not of what is right or wrong but which is the better of two rights and, if it is right today, will it be right tomorrow? Finally comes the gravest blow to the idealistic ego: the realization that perhaps I—the most virtuous, the most dedicated I, perhaps I am not the only one with high purpose, with honorable intent. His smug shell shattered, the medical fledgling is now ready to strive for professional maturity. But he is and always will be the child whose need for being needed is so strong that he must live his life at the call of others, damning the phone when it rings and fretting if it doesn't and recharging his emotional battery each day by taking up for someone this most beautiful and most futile struggle against the ultimate and unconquerable enemy, Death.

And now this matter of ethics. If one thinks back to that time when there was only one man on earth, one beholds the only time when the problem of ethics did not exist, for at this time all things were either good or bad. Man stood alone with his God and from his God received direction. But another person arrived upon the scene and immediately the problem of ethical relationships came into being. There were differing ideas of good and bad and of God's rules and intent. It became a matter of which was the better of these varying attitudes. It became apparent that that which seemed better at the moment might prove not to be later. Each had to arrive at some relationship with the other—would it be better to kill the other and eliminate the problems and competition or should they join forces against common threats? Fortunately, they chose the latter, and ever since woman has kept man baffled as to whether she really wants to continue the relationship and she has remained constantly challenged by the problem of how to change him to suit her wishes. Man continues to view his woman's ideas and efforts with suspicion that they will lead ultimately to another apple. Woman's persistence, man's resistance—this balance of forces is the only stability we know.

This brings us to the woman, then, who for better or worse, is a doctor's wife. This much is evident: she had to be attracted to the union by the man, by the profession, or by some combination of the two. In the first case, she may very well be miserable when subjected to the reality of marriage to this disciple of Aesculapius who is always running over to the temple to burn some incense. In the second case, she may well find herself inadequately satisfied by her vicarious practice of medicine if her husband does not fulfill her expectations of function. Those in the third group would seem to have the best chance for a successful resolution of the conflicts between marriage and profession. The physician's wife has an unenvi-

able assignment—that of being expected to live in harmony with her husband's mistress.

Let us consider the code of ethics, then, and measure each against the potential of the wife to meet it from the standpoint of her relationship to the union, whether she was (1) attracted by the man (2) by the profession or (3) by some combination of both.

1. *The principal objective of the medical profession is to render service to humanity with full respect for the dignity of man. Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion.*

This is why dinners are spoiled and social evenings are a bust. This is why you dig through the sample box looking for something to give the kids when they are sick while your husband is out treating someone else's sick kids. This, in short, is why the ideal physician is an orphan bachelor. To fulfill this concept to the letter would permit the physician to have no other interests, for it implies that there should be no demands upon him but his practice.

This is the coming together of all of the principles and intents of good medical practice and the individual doctor who applies them to the patient. A considerable part of medical management could be performed by a robot. The conduct of medical practice over and above this rote level depends upon the personality and ability of the individual practitioner. The physician-patient relationship consists of and depends upon the maintenance of such standards. The physician deserves to enjoy the inherent honor of the profession so long as and to the degree that he adheres to this philosophy.

It seems to me that Wife No. 1 would have the greatest difficulty in adjusting to this demand, Wife No. 3 would find it easier while Wife No. 2 would be able to take it in stride since in giving up her husband to his practice, she would be gaining part of what she seeks.

2. *Physicians should strive continually to improve medical knowledge and skill and should make available to their patients and colleagues the benefits of their professional attainments.*

Basically, this rejects the idea that a physician is, at any time, completely trained and sufficient to render the best service at all times. It is an ideal, and the ethical point involved is that the good of medical practice can be maintained only by progress. There can be no standing still.

For the physician's wife, it can mean only that she assumes the willingness to be deprived of that part of the husband which must be expended toward this end. She is wise if she achieves that commendable objectivity which brings into focus the fact that the husband-wife relationship is more stable if this is

accepted—or certainly it is jeopardized if the husband is unable to meet or deterred from meeting this obligation by refusal of his wife to understand it.

Again I think the wife who is in love with the practice will find this much easier to support than will the wife whose total interest is in her husband—but Wife No. 3 will have the edge on both.

3. *A physician should practice a method of healing founded on a scientific basis; and he should not voluntarily associate professionally with anyone who violates this principle.*

Here, of course, we have the osteopath-chiropractor-Christian Science problem. This is one of the areas in which the medical profession has a difficult and important problem of interpretation and explanation to the public. People are surprisingly uncertain of the differences between orthodox medicine and the various cults. They are inclined to question the integrity of the medical profession because its approach is often more ponderous, obtuse, and, we must admit, sometimes more expensive.

The physician has no choice but to stretch the letter of this principle at times. Medical history is replete with examples of controversial schools of thought which flourished for a time, then passed on, leaving some element of value to be added to our professional knowledge.

This principle will lead to some embarrassment and no small amount of criticism for the doctor and his wife as they pursue community activities. The former must be able to indicate by word and action that his antagonism against cults is truly based on the best interests of medical practice and protection of the public, not self interest and income. The latter must learn to restrain her impulse to defend too strenuously the precepts of her husband's method of practice lest she add social fuel to the professional fire.

The wife who is balanced between her husband and his work will be best equipped to meet the problems engendered in this connection. The wife who is primarily interested in the work may prove to be too militant, while the wife whose interest is in her husband would tend to be too emotional.

4. *The medical profession should safeguard the public and itself against physicians deficient in moral character or professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose without hesitation, illegal or unethical conduct of fellow members of the profession.*

This encompasses some of the most difficult features of physician interrelationship. I know of no phase of organized medical activity which is more distressing to execute than this problem of keeping



our own house in order. Certainly there is none more important, and the main purpose of organization should be for this very function. It is difficult enough to bring about such disciplinary action on an impersonal, objective organization level. It would be totally ineffectual on a personal level. The physician, when innocent of misdeed, needs and deserves the support of his colleagues all the more strongly because his peculiar position in the community makes it hard for him to defend himself against mistaken public opinion. When he is not innocent, it often falls to his colleagues directly or indirectly to bring about his castigation, the most distasteful but necessary duty the group may experience.

There is no phase of practice or point of ethics in which the husband and wife are more intimately related. In fact, it may be in their relationship that the problem exists. Certainly, if it relates to professional behavior apart from their personal relationship, he will never need her support more than at that time. I think the union based on the attraction of the individuals is most important in this area because of the high degree of personal loyalty necessary. If the wife's interests are mainly in the profession, she will not be able to judge her husband's weaknesses adequately and will tend to force him into actions he is unfitted for and may actually bring him to the indiscreet or illegal actions which are his downfall.

5. *A physician may choose whom he will serve. In an emergency, however, he should render service to the best of his ability. Having undertaken the care of a patient, he may not neglect him; and unless he has been discharged, he may discontinue his services only after giving adequate notice. He should not solicit patients.*

I am sure that this point of medical ethics is least known to the public. It states that the physician has the right, with proper notification, to practice or not to practice, whereas many people believe there is some legal compulsion operating under all circumstances.

It tells the physician, "Thou shalt not steal thy neighbor's patient" and is of obvious importance in its intramural application. There is surely no phase of practice in which misunderstanding and consequent enmity enter in so easily for this so often leads directly to the physician's two tender spots—his ego and his pocketbook. Discounting the economic aspects of the matter, however, we certainly touch here on an element of practice in which the individual physician, his personality, motivations, and conscience are paramount.

The wife's position is, then, once more, related to the profession through her husband, and a relationship based on her affection and loyalty to him is of chief importance. Again I would place it first, the

combined attraction second, and the primary interest in the profession third.

6. *A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care.*

This section relates to the free choice of physicians, contract practice, corporation practice, and such. Extremely fine lines of definition apply here, and each case must be determined on its own merits. As it has been interpreted and applied, it means primarily that the physician should not enter into any plan of medical care which inherently causes him to violate one of the other principles of ethics. It is specifically limited to mechanics of practice and the wife can be involved only through her husband, but that involvement can become a serious one, particularly if the wife puts pressure on her husband to pursue a practice unfitting to his capabilities. It seems to me that although each of our wifely examples would approach this problem from a different angle, they should be about equally capable of meeting it and we can therefore give them equal grades.

7. *In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him, or under his supervision, to his patients. His fee should be commensurate with the services rendered and the patient's ability to pay. He should neither pay nor receive a commission for referral of patients. Drugs, remedies or appliances may be dispensed or supplied by the physician provided it is in the best interests of the patient.*

This, you will recognize, is the fee-splitting, drug-rebate clause. It is, to a considerable degree, a product of specialization. At one time, the physician provided all the service, including medications. It has become apparent over the years that the best medical care is provided when the physician is unencumbered by the necessity of taking time for things that could be delegated to others and unenticed by the remuneration stemming from excessive sale of adjunctive therapeutic agents; thus the separation of the physician from the pharmacist and the medical supply salesman. Within the profession, the surgeon emerged as an entity, and the possibility of referrals based on remuneration was implicit. While it is obvious that the quality of medical care is not directly related to charge, and the relative importance of a particular part of the care in the successful solution of a medical problem is incapable of positive definition, proper care can be assured only when the service is ethically given and the charge is honorably assigned.

This clause relates rather strictly to the financial side of the practice of medicine. It affects the wife,



therefore, in terms of income and in terms of the personality of the physician, for whether he violates this principle or not depends upon his own character rather than some specific condition forced upon him by the profession. We may assume, therefore, that her primary concern will be most in the man and least in the profession. If her interests were in both she would take a place somewhere in between.

8. *A physician should seek consultation upon request; in doubtful or difficult cases; or whenever it appears that the quality of medical service may be enhanced thereby.*

It would seem that this would have little direct bearing on the physician's wife. Only as she is called upon by him for moral support or counsel can she be affected by it. Certainly her ethical relationship is through her husband, but she must have some understanding of and belief in the ethical principles of medicine in order to serve the interests of her husband or the profession. It might seem, therefore, that one attracted to both the man and the practice would be best suited to take such an obligation in stride. The wife whose feeling is entirely for her husband should come second and the professional wife third.

9. *A physician may not reveal confidences entrusted to him in the course of medical attendance, or the deficiencies he may observe in the character of patients, unless he is required to do so by law or unless it becomes necessary in order to protect the welfare of the individual or of the community.*

Nowhere in the principles of medical ethics is the necessity for mutual understanding and trust between the physician and his wife more indicated than here. In maintaining the spirit of medical ethics, the wife will never be harder pressed than she will be in fulfilling the intent of this most important clause. We must accept at the outset the proposition that in a physician's family, it is impossible to avoid the disclosure of certain items of medical information. This is one time when the public is less concerned with the physician's wife measuring up to her self-imposed rule to stay out of things than is she herself. How often, in the absence of the doctor, is the patient willing to disclose the gory details to the wife—or assume she is already aware of them—and ask her advice? What medical wife has not had to play dumb at bridge club? What actress can give a better performance than the well trained wife of a doctor when her lay friends are after some information she may or may not have?

Certainly, in fulfilling her share of this code, she must be governed by her own good judgment and training, but her motivation will be in her husband's interests. Loyalty to the profession may assist in her resolution and willingness to be criticized by her

friends rather than reveal privileged information, but the woman who has been attracted primarily by medical practice will fail completely in honoring such confidences as she is certain to share. She will, in fact, aggrandize herself and alienate her husband by freely distributing such information, embellished if possible, to willing lay listeners.

10. *The honored ideals of the medical profession imply that the responsibilities of the physician extend not only to the individual, but also to society where these responsibilities deserve his interest and participation in activities which have the purpose of improving both the health and the well-being of the individual and the community.*

In this one consideration, the responsibilities of the physician can be thoroughly supported by the wife who has been primarily attracted to the world of medicine rather than the man of medicine. She will tolerate such demands upon him as civic enterprises make better than the wife who sought a husband, finds she must give up much of him to his practice, and then finds she must give up even more to community interests.

More than an evaluation of right or wrong, this is a statement of purpose, and it is my belief that it will become increasingly important. The physician has in many respects been an isolationist. Paradoxically, in restricting his observations and efforts to the welfare of the individual, he has often ignored the total welfare of the group. He has pleaded lack of time and withheld his needed counsel until the threat of encroachment upon his prerogatives has caused him, in a display of what seems to his lay friends an unbecoming self interest, to take part in community functions.

The Auxiliary can well take pride in the fact that it has consistently been ahead of the doctors in joining with the community, and a major part of such good public relations as the Society has enjoyed can be attributed to the efforts of the Auxiliary.

In case you haven't kept track, the wife whose interest is primarily in her husband took four first places in our little competition; the wife whose interests were both ways came in first three times, and the wife who got in it for the kicks could do no better than two firsts—and there was one tie. I am sure the biostatisticians would play havoc with my methods, but I do not admit any error in my conclusions; to me the results say what they have been saying all through the ages: If a woman can take her place beside a man with mutual affection, respect, and interest, there shall be no need for a written code of ethics. And if she cannot or will not, no code of ethics, no statement of principles, no high sounding phrases will suffice to make the union a success.

# Clinicopathological Conference

## *Nausea, Weight Loss, Glycosuria and Severe Epigastric Pain*

### Case Presentation

A 48-year-old white woman complaining of abdominal pain was admitted for the first time to KUMC on December 14, 1957.

In January, 1956, she began to have nausea, anorexia, and weight loss. She consulted her physician in February, 1956. At that time her weight had dropped from 153 to 120 pounds. Sugar was found in the urine, and she was told that she had diabetes. The symptoms and glycosuria were apparently well controlled with tolbutamide (Orinase), and she felt well until August, 1956, when she had a severe, sharp, intermittent pain in the left shoulder. By September the pain had "gradually moved down" to the upper abdomen, but she also continued to have pain in the left shoulder and interscapular area until November, 1956. The abdominal pain persisted until her admission. It was sharp and severe, radiating straight through to the back, and often occurring after meals and at night. It was not relieved by eating, but she obtained some relief by sitting upright or by bringing her knees up into a "jackknife" position.

The pain was almost constant for two months before admission and was associated with vomiting. She had some dysuria for one week before admission and complained of some shortness of breath on exertion. Her appetite was poor, and her weight continued to decrease.

She had had diphtheria and "flu" as a child. When she was 38 years old she was told that she had a "heart condition, high blood pressure, and fibrillation." In 1952 she had a hysterectomy because of uterine bleeding, and in October, 1956, she had a conization of the cervix because of "spotting."

Her father died of uremia at the age of 42, and her mother died of carcinoma of the uterus at the same age. One brother died of heart disease at 30 years; two brothers and one sister were living and well.

The patient was a well developed but poorly nourished white woman who weighed 102 pounds. Her

blood pressure was 170/80-0 and her pulse rate, 100. The optic fundi revealed grade III arteriosclerotic change. No other abnormalities were observed in the eyes, ears, nose, or throat. The neck was normal. The chest was clear to percussion and auscultation; the breasts were negative. The heart was not enlarged, and the rhythm was regular. There was a grade I systolic murmur at the aortic area and a grade I systolic murmur at the apex.

The liver was firm and palpable 6 cm. below the xiphoid. There were no other palpable organs or abnormal masses. There was moderate tenderness in the epigastrium. On pelvic examination the uterine cervix was found to be normal, but the fundus was surgically absent. The pelvis was otherwise negative. There was grade II edema of the ankles. The neurological examination was negative.

The urine specimen had a specific gravity of 1.009, and the reaction was acid. There was 1 plus albumin, but no sugar. The centrifuged sediment contained 50 to 60 white blood cells and 1 to 2 red blood cells per high power field, and it was loaded with motile bacteria. The test for occult blood was positive. The hematocrit was 39 ml. with 13 gm. of hemoglobin, and the white count was 11,250 with 85 per cent polymorphonuclears, 13 per cent lymphocytes, and 2 per cent monocytes. The platelet count was 121,000.

The serologic test for syphilis was non-reactive. The blood urea nitrogen was 10 mg. per cent; creatinine, 1.6. mg. per cent; total serum bilirubin, 0.7 mg. per cent; direct serum bilirubin, 0.4 mg. per cent; alkaline phosphatase, 18.1 millimol units; serum albumin, 3.36 gm. per cent; serum globulin, 2.3 gm. per cent, and the total cholesterol was 230 mg. per cent with 62 per cent esters. The prothrombin time was 87 per cent; cephalin cholesterol, negative; and the thymol turbidity, 2 units. The sedimentation rate was 18 mm. in one hour. The serum amylase was 43 units per 100 ml.

The patient complained of almost constant epigastric pain and required frequent injections of meperidine hydrochloride (Demerol) for relief. She was started on a regimen of frequent feedings, aluminum hydroxide gel with magnesium hydroxide, scopolamine methylbromide (Pamine), and promazine hydrochloride (Sparine) in a dose of 25 to 50 mg. four

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Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

times a day. She had some relief from the pain; her appetite improved, and she gained three pounds during the first nine hospital days. On December 22 she received 15 units of regular insulin for a 4 plus urine sugar and a blood sugar of 402 mg. per cent, and on December 23 she was given five units of regular insulin for a 2 plus urine sugar. During the remainder of her hospitalization the urine specimens were negative for sugar, and her afternoon blood sugars ranged between 121 to 265 mg. per cent. On the tenth hospital day a surgical procedure was performed.

Dr. Mahlon Delp (moderator): Are there any questions?

Mark Devine (fourth year medical student)\*: Did she have hematemesis at any time?

Dr. William L. Hayes (resident in medicine): No.

Gerald Oehler (student): Was a transaminase determination done?

Dr. Hayes: No, it was not.

Ronald Kloster (student): Was acetone found in the urine?

Dr. Delp: There was no evidence of it.

Asher Dahl (student): Was she ever febrile?

Dr. Delp: Not during her hospitalization.

Gordon Cowles (student): Did she have a previous history of diabetes?

Dr. Hayes: No, it was first diagnosed in 1956.

Ned Noll (student): Was serum lipase estimated?

Dr. Hayes: A lipase was ordered but not run because of insufficient blood.

Ernest Gilbertson (student): Were electrolytes or a bromsulphalein retention determined?

Dr. Hayes: On January 2 the serum sodium was 124 mEq/L; potassium, 4.3 mEq; chloride, 90 mEq. The sample was insufficient for a determination of carbon dioxide.

Dr. Delp: Bromsulphalein retention was not determined.

Mr. Devine: Did she have a gastric analysis?

Dr. Hayes: A tubeless gastric analysis gave evidence of free hydrochloric acid.

Mr. Oehler: Did she ever have neurotic symptoms or chronic complaints before her admission?

Dr. Hayes: She was severely psychoneurotic.

Mr. Cowles: Was she ever an alcoholic?

Dr. Delp: No, I think not.

Mr. Gilbertson: Did she have symptoms of gall-bladder disease before the beginning of her other symptoms?

Dr. Delp: No.

Mr. Kloster: Did she have any recurrent upper abdominal pain?

Dr. Hayes: No, she had been well and working up to January or February, 1956.

Mr. Dahl: Did she have pain on palpation over the spine or paravertebral areas?

Dr. Hayes: No.

Mr. Kloster: Were porphyrin excretions obtained?

Dr. Delp: No, they were not.

Mr. Cowles: Had she been taking antibiotics or drugs other than the tolbutamide before her admission?

Dr. Delp: Two weeks before her admission she was started on regular insulin, 10 units a day.

Mr. Gilbertson: Was there a family history of diabetes?

Dr. Hayes: No, there was not.

Mr. Dahl: Was any swelling associated with the pain in her shoulder during August, 1956?

Dr. Delp: Probably not, but we are not sure.

Mr. Devine: Was there swelling or tenderness in the legs?

Dr. Hayes: There was edema but no tenderness.

Mr. Kloster: What was the specific gravity of the urine?

Dr. Delp: The specific gravity ranged from 1.002 to 1.014. Now, if there are no more questions, may we please have the electrocardiogram?

Mr. Kloster: The only tracing that we have (Figure 1) shows a normal sinus rhythm and a rate of 90 to 100 per minute. In the limb leads the axis is plus 30 degrees. There is right ventricular config-

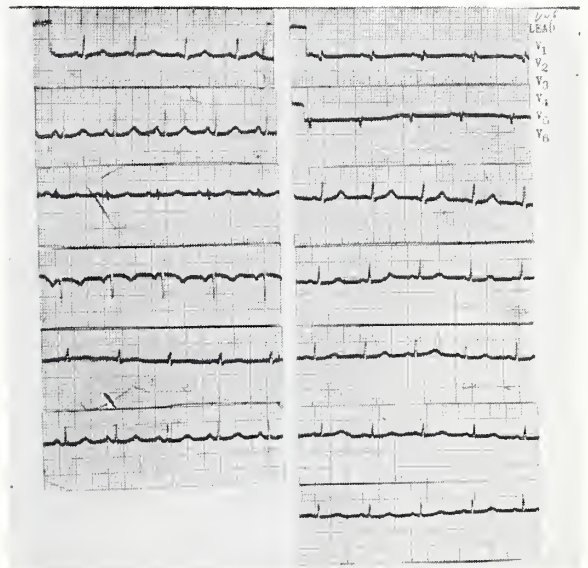


Figure 1. Electrocardiogram taken on December 15, 1957.

\* Though a student at the time of this conference in January, 1958, he, like the others referred to as students, received the M.D. degree in June, 1958.



uration in  $V_1$  which changes to a left ventricular pattern in lead  $V_2$ . There is some evidence of counter-clockwise rotation, but I interpret this as a normal electrocardiogram.

Dr. Delp: May we have the x-rays, please?

Mr. Noll: The x-ray of the chest shows no bony abnormalities, and the heart is normal in size. There is some increase in the pulmonary outflow tract. The diaphragms are of normal contour; the costophrenic angles and lungs are essentially clear. There is some increase in hilar markings. I interpret this as a normal chest.

The gastrointestinal series reveal no abnormality in the stomach. There is some deformity of the bulb (Figure 2) but no evidence of ulceration. Small radiopaque areas are seen. There is normal concentration of the dye in the gallbladder.

A film taken on December 17, 1957, shows some redundancy and a high splenic flexure which I believe is abnormal. Three opacities are seen which could be interpreted as gallstones.

Dr. Delp: Dr. Germann, what is your interpretation of these films?

Dr. Donald R. Germann (radiologist): The first film shows a large, dilated and atonic colon; and there appears to be a large amount of feces in the

colon. It was a difficult examination, but we felt that we demonstrated an atonic colon without intrinsic pathology. The opacities seen are a revisualization of the gallbladder. The patient had gallbladder dye 48 hours before, and as the gallbladder fills in about 12 hours, then contracts and empties, the dye is reabsorbed if the gallbladder function is good.

The stomach appears to be normal and active. She had little pyloric spasm and a grossly deformed duodenal bulb. There is a sinus tract extending down from the duodenal bulb into the lesser curvature sides of the loops in a deep penetrating lesion. I interpret this as a duodenal ulcer penetrating into the pancreas. The stomach was not displaced, and the mucosal pattern was normal. A film was taken in the search for a possible mass behind the stomach (Figure 3).

Dr. Delp: Thank you. Now, Mr. Devine, will you please begin our discussion.

### Differential Diagnosis

Mr. Devine: This 48-year-old white woman had considerable weight loss over a relatively short period of time, severe upper abdominal pain radiating to



Figure 2. X-ray on December 16, 1957, showing deformed duodenal bulb.



Figure 3. X-ray, December 16, 1957, showing duodenal ulcer penetrating into pancreas.

the back, anorexia, nausea, vomiting, and glycosuria. She had no jaundice.

My first consideration is metastatic lesions in the pancreas, the most common primary sites being the lungs, breast, and thyroid. I believe, however, that we can rule these out because there is no evidence of primary neoplastic disease of these organs, and secondary tumors of the pancreas seldom produce clinical symptoms or serious disturbances of pancreatic function.

Primary carcinoma of the liver can be ruled out as a possible diagnosis because during the course of this disease there is usually a dull pain in the right upper quadrant with no particular radiation to the back, and jaundice and ascites usually occur at some time. There is also a greater disruption of liver function than has been demonstrated in our patient.

Carcinoma of the gallbladder and biliary tract should be considered, but there is no previous history of gallbladder disease or any episodes of jaundice.

Neoplastic diseases of the stomach must be considered, but there was no x-ray evidence of any disorder in the stomach, no anemia, and no occult blood in the stool. In order to explain the patient's symptoms it would be necessary to postulate perforation of a neoplastic ulcer into the pancreas, but this is a rare occurrence and happens only in a small percentage of cases.

Pancreatic cysts give signs and symptoms which mimic this disease with severe pain in the epigastrium radiating to the back, diabetes, and, in a few cases, a striking weight loss. There also can be malignant degeneration of pseudo-cysts, cystadenocarcinoma, but I believe this diagnosis can be ruled out because there was no previous evidence of recurrent pancreatitis or trauma to the area of the pancreas. These are the etiologic factors of pancreatic cyst formation. There is an easily palpable mass in 75 per cent of these patients, but we had no positive evidence of this in this instance.

On the basis of the x-rays I shall next consider benign peptic ulcer with posterior perforation into the pancreas. In eight per cent of gastric ulcer cases there may be perforation into the pancreas resulting in symptoms such as our patient had, but perforation of a duodenal ulcer is rare. Furthermore, our patient never gave any evidence of having had a bleeding tendency, and 40 per cent of these cases have hematemesis. Our patient had no ulcer rhythm or previous history of pain.

Severe abdominal pain with radiation to the back may occur in chronic relapsing pancreatitis. Hyperglycemia and severe weight loss occur in approximately 25 per cent of these cases, but this is usually

a late finding. It is important that she had a 33-pound weight loss in a relatively short period of time, and I believe this militates against a diagnosis of chronic relapsing pancreatitis. She also had an alkaline phosphatase of 18.1 millimol units which cannot be explained on the basis of chronic relapsing pancreatitis unless there was concomitant liver or bone disease, and there was no evidence of either. In acute episodes of this disease the amylase is usually elevated more than 200 units; it can, however, return to normal in 24 to 36 hours.

Carcinoma of the head of the pancreas can be ruled out on the basis of Bell's series in which he found that 42 per cent of patients with carcinoma of the head of the pancreas initially had jaundice and another 40 per cent had jaundice at some time during the course of the disease. There was no x-ray evidence of carcinoma of the pancreas. Another rare syndrome that might be considered is the alpha cell tumor of the pancreas, but this can be ruled out because that disease is ulcerogenic, producing multiple, atypical ulcers in the gastrointestinal tract, and only 25 cases have been reported in the literature.

My final diagnosis is carcinoma of the tail and body of the pancreas. Our patient had a severe weight loss of 50 pounds in nine months. In Bell's series 88 per cent of such patients were reported to have had weight loss, and that was the presenting complaint for most of them. Our patient had severe, intermittent, upper abdominal pain which radiated to the back. This is typical of pancreatic disease, and the jackknife position assumed for relief of pain is the classic finding in carcinoma of the tail and body of the pancreas. She also had mild diabetes, or, at least, hyperglycemia and glycosuria which apparently occurred at the start of her symptoms. There was no familial history of diabetes, and she never had had diabetes before. Twenty per cent of Bell's patients had glycosuria and hyperglycemia. A disease which produces this amount of debilitation usually produces a hypoglycemia, but patients with carcinoma of the body or tail of the pancreas often have hyperglycemia. The elevated alkaline phosphatase, 18.1 units, is another point to consider, and it can be explained in no other way than to postulate that there were metastases to the liver from the neoplasm in the pancreas.

Since we have been told that our patient did not die, I must say something about the prognosis. One-half of Bell's patients died about six months after the initial symptoms; 17.5 per cent lived for about a year. It was also noted in the protocol that she had a surgical procedure, and we can only speculate about what the procedure was. It may have been a denervation of the pancreas for relief of pain. A laparotomy



may also have been done in order to make a definitive diagnosis or in the hope that this was a curable disease.

### Clinical Discussion

Dr. Delp: Mr. Kloster, what is your diagnosis?

Mr. Kloster: Primary carcinoma of the body and tail of the pancreas.

Dr. Delp: Mr. Noll?

Mr. Noll: The same.

Dr. Delp: Mr. Oehler, how do you explain the alkaline phosphatase now?

Mr. Oehler: It would have to be explained as a secondary finding of carcinoma of the pancreas, although the alkaline phosphatase may be explained on another basis than metastases to the liver.

Dr. Delp: This liver function profile is fairly normal except for the alkaline phosphatase. Mr. Cowles, what is your opinion about the x-ray findings?

Mr. Cowles: There could have been actual invasion into this area from the tumor of the pancreas.

Dr. Delp: Mr. Noll, what is your opinion?

Mr. Noll: I was reluctant to make a diagnosis of perforation into the pancreas because I wanted a more difficult diagnosis. There was the possibility that she not only had a neoplasm but a pancreatitis secondary to perforation. Only a small percentage of these cases present symptoms of pancreatitis or pancreatic deficiency.

Dr. Delp: May we have your opinion, Dr. Douglas?

Dr. Harry L. Douglas (internist): Three things come into my mind: carcinoma of the pancreas, chronic recurrent pancreatitis and perforation of a duodenal ulcer into the pancreas. The fact that her diabetes was mild may suggest that it was secondary to pancreatic disease. She certainly had pancreatic pain over a long period of time. The fact that the diabetes antedated the onset of pain is against its being secondary to a pancreatitis or a posterior perforation of a duodenal ulcer. It would be interesting to know whether she had any weight loss between February and September, and, after the initial loss, whether she continued to lose weight or whether it was maintained over that period of several months. My first impression is that she had a primary carcinoma of the pancreas with liver metastases. She may have developed the ulcer after leaving the hospital a year ago. I agree with the diagnosis of primary carcinoma of the body or tail of the pancreas.

Dr. Delp: Dr. Rankin, what is your diagnosis?

Dr. Thomas J. Rankin (internist): I believe, as did the students, that she had two diseases; the elevated alkaline phosphatase cannot be explained

otherwise. Recent literature discusses the significance of this finding alone as meaning masses within the liver.

Dr. Delp: Dr. Weber, what did you consider in your differential diagnosis?

Dr. Robert Weber (internist): My initial diagnosis was carcinoma of the pancreas, and the return finding of the elevated alkaline phosphatase seemed to confirm it because the liver was hard and easily palpable, suggesting metastatic disease of the liver. The patient continually complained of pain, and the demonstration of a fistulous tract between the duodenum and pancreas suggested that as the cause of part of her pain. There was a possibility of metastatic or direct extension from the pancreatic tumor.

Dr. Delp: Dr. Boley will now give the pathological report.

### Pathological Report

Dr. James Boley (pathologist): I would like to show the findings on this case and then reiterate some of the facts that Mr. Devine and Dr. Douglas have already mentioned. In the biopsy of the omentum, composed of fat, tumor cells were found. As with most metastatic lesions in either omentum or mesentery, lymphocytes were numerous in and near the groups of tumor cells, and there was an increase in fibrous tissue.

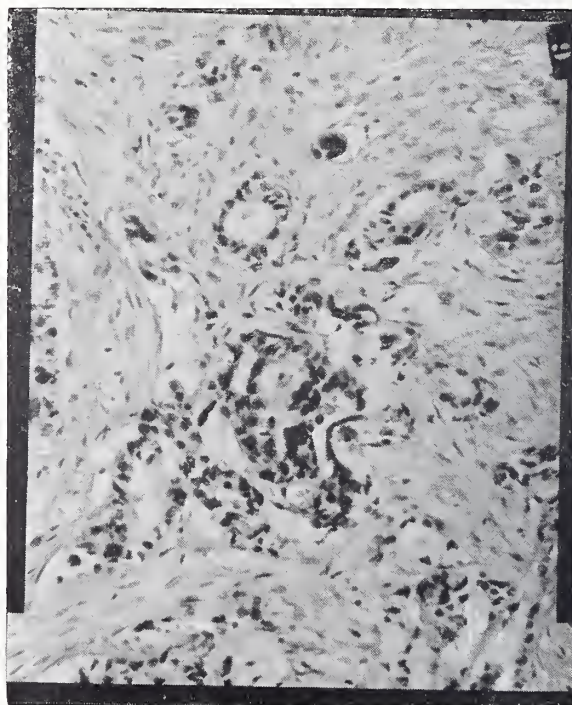


Figure 4. Metastatic adenocarcinoma in omentum showing desmoplastic reaction. Hematoxylin and eosin stain. X250.



The tumor nests were those of a well differentiated adenocarcinoma with considerable desmoplastic reaction (Figure 4). The periodic acid Schiff reaction showed the tumor to be a mucus-producing type of carcinoma. The tumor was, therefore, metastatic, and may have had its origin in several areas such as gallbladder, liver, bile duct, pancreas, or gastrointestinal tract.

The history was characteristic of involvement of the tail and body of the pancreas by carcinoma.<sup>2</sup> The patient was a diabetic, and carcinoma of the pancreas occurs six times more often in diabetic than in non-diabetic individuals.<sup>3</sup> The production of mucus by the tumor would indicate origin from the ducts of the pancreas rather than from the acini. The elevated serum alkaline phosphatase would indicate metastases in the liver.

From the facts available, I would submit a probable diagnosis of adenocarcinoma of the body or tail of the pancreas with metastasis to the liver. Dr. Allbritten's findings at the time of surgery will be helpful in substantiating this opinion.

Dr. Delp: Thank you. Dr. Allbritten, will you tell us of your findings, please?

Dr. Frank F. Allbritten (surgeon): I can add nothing to the preoperative findings that have not already been given, and I agree with them. Preoperatively we made the hopeful diagnosis that this might be pancreatic pain secondary to perforation of the duodenal ulcer. There was little doubt in our minds that our patient was having pancreatic pain, although the history of its having started in the left shoulder and left side of the back was a little unlikely so far as a duodenal ulcer, etiologically, is concerned. We still hoped that this might be caused by pancreatitis, secondary to a perforated duodenal ulcer, and that was our preoperative diagnosis.

At the time of the exploratory laparotomy it was evident that there was a large mass situated posterior to the stomach. There were nodules in the omentum, and the liver contained multiple nodules of varying sizes scattered throughout the left and right lobe of the liver. The pelvis could not be explored adequately because of the old adhesions secondary to the previous operation. No attempt was made to break down the adhesions considering evidence of widespread metastatic disease. We simply did a biopsy of a nodule in order to confirm the diagnosis histologically. The left omental cavity was opened in order better to visualize the mass lying posterior to the stomach. We found the pancreas encased in a neoplastic mass in the body and tail of the pancreas as though it were involved in the neoplasm which was primarily retroperitoneal. The duodenum was also involved in an inflammatory process between the

superior portion of the duodenum and the under surface of the liver, as if at some time there had been actual perforation of the duodenum which had sealed off against the liver. We could not adequately palpate the lesser curvature of the duodenum because of the swelling of the pancreas and the inflammatory reaction about the area. It was also possible that there was a perforation into the pancreas, but this could not be delineated without expensive operative manipulation which we did not think was justifiable. The postoperative diagnosis was carcinoma of the body of the pancreas with metastases to the perineum and the liver.

Dr. Delp: How do you explain the edema?

Dr. Boley: It could easily have been from vena cava compression.

Dr. Allbritten: She did have peritoneal implants beneath the diaphragm.

### Summary

Dr. Delp: In summary, this 48-year-old white woman entered the hospital complaining of quite dramatic pain which sounded like the classical description of pancreatic pain. I believe the pain and the posture that she constantly assumed was revealing and seemed to be intimately associated with the history of neoplastic invasion of the pancreas or development of neoplasm within the pancreas itself. Lending strength to this impression was the fact that she had developed diabetes without family history, without having been obese, and without having any prior liver disease; and the diabetes developed simultaneously with the onset of her other symptoms.

An extremely important and helpful finding was the elevated alkaline phosphatase in the absence of an elevated serum bilirubin. Another important factor was the so-called neurotic personality which she manifested for about nine months. Personality changes have been stressed by many students of carcinoma of the pancreas, and our patient had undergone a personality change which was obvious to her friends, to the physician for whom she worked, and, especially, to her daughter. I am somewhat hesitant to say that these personality changes could not have been secondary to the constant, terrible pain which she had for almost ten months before her admission here. Consider also the fact that before her admission she had become thoroughly addicted to narcotics. The symptoms of withdrawal which she manifested between every narcotic injection might have altered her over-all appearance and added to her personality change.

The really disconcerting factor was Dr. Germann's finding of this sinus tract, and this became even more confusing when she was started on anti-

cholinergic blocking agents and antacids for she immediately showed mild improvement, and she had obvious relief from pain. This encouraged me to concur with Dr. Allbritten's suggestion that a hopeful diagnosis was indicated, and I began to hope that she might have a curable disease. We had thoroughly determined, however, to do an exploratory operation regardless of our impression, in the hope that something could be done.

The patient is still in the hospital. She is not doing well, but she is considerably better than she was before the surgery.

## References

1. Bell, E. T.: Carcinoma of pancreas, *Am. J. Path.* 33:-499, 1957.
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3. Marble, A.: Diabetes and cancer, *New Eng. J. Med.* 211:339, 1934.

## College of Surgeons Meeting

The annual meeting of the Kansas Chapter of the American College of Surgeons was held in Wichita on November 2. Dr. Marion F. Russell, Great Bend, was installed as president with the following additional officers: president-elect and vice-president, Dr. Glen E. Kassebaum, El Dorado; secretary-treasurer, Dr. Robert W. Myers, Newton; councilors, Dr. A. E. Hiebert, Wichita, and Dr. H. S. O'Donnell, Ellsworth.

The program consisted of a series of 15-minute papers, four during the morning period: "Abdominal Pregnancy," Dr. Garland L. Campbell, Arkansas City; "Cesarean Section and Routine Appendectomy under Pentothal Anesthesia," Dr. Richard E. Speirs, Dodge City; discussion by Dr. Jerome S. Menaker, Wichita; "The Scope of Exfoliative Cytology," Dr. Ruth Taylor, Wichita; "Carcinoid," Dr. Ernest P. Carreau, Wichita; discussion by Dr. Leslie L. Saylor, Topeka.

The following papers were given during the afternoon: "Injuries about the Hip Joint," Dr. Charles K. Wier, Wichita; "Tetanus," Dr. W. Curtis Niederee, Wichita; discussion by Dr. Clyde B. Trees, Topeka; "Problems in Vascular Surgery," Dr. Jack W. Graves, Wichita; "Extra Corporeal Circulation," Dr. John G. Shellito, Dr. Ben H. Buck, Dr. Carreau, and Dr. Robert Robinson, Wichita; discussion by Dr. Robert G. Rate, Halstead.

## Study of Low Cost Insurance

The Washington, D.C., area Blue Shield organization, at the request of the District of Columbia Medical Society, is studying the possibility of setting up a separate medical-surgical care plan for low-

income groups, including the aged, that would provide regular benefits at a reduced premium.

Dr. Donald Stubbs, Washington Blue Shield president and chairman of the national Blue Shield board of directors, said the income cutoff point could not be estimated until it was learned how many subscribers would be covered. However, he thinks the maximum family income to qualify would be about \$3,000. Hospitalization would not be covered.

An outline of the proposal has been sent to the six medical societies in the Washington area for consideration. Dr. Stubbs says he has heard "nothing unfavorable." At the present the Washington Blue Shield has one income cutoff point, \$6,000. Premiums average \$4.94 a month per family and \$1.56 per individual. Because the new low-cost plan is merely in the development stage, no premiums have been decided upon.

Somewhat similar arrangements exist in some other parts of the country, having evolved over the years as higher income groups have been charged higher premiums. Some plans have as many as seven separate premium rates, based on income.

## Flying Physicians Meet

Aviation safety practices of physicians were discussed at a two-day meeting held by the Kansas Flying Physicians Association at Western Hills Lodge in Sequoyah State Park, Oklahoma, on November 15 and 16. Flying physicians from Oklahoma and Arkansas were guests.

Dr. Charles W. McMillin, regional medical officer of the C.A.A., was the principal speaker.

Dr. Louis N. Speer, Ottawa, is president of the Kansas group and Dr. C. F. Taylor, Norton, is vice-president.

More than 250,000 physicians in the United States and Canada are listed in the new 20th edition of the *American Medical Directory*, published recently by the American Medical Association. There were 240,638 listings in the 1956 edition. The directory lists each physician's age, address, date of licensure, specialty, and membership in specialty groups.

Dr. J. Allen Reese, dean of the College of Pharmacy of the University of Kansas, was honored recently for his contribution to the pharmaceutical profession. An oil painting of Dean Reese was presented to the college by Wyeth Laboratories. A reproduction was used on the cover of a Wyeth publication for pharmacists, *Pulse of Pharmacy*.

# Schizophrenia

## *Diagnosis in Early Stages of the Disease*

HUGO J. ZEE, M.D., *Kansas City, Missouri*

Although the incidence of schizophrenia in the general population is relatively low, the gravity of this disease is widely recognized.<sup>1,2,3,4,5</sup> The nature of the illness frequently requires institutionalization, and its great chronicity has brought more schizophrenic patients to the hospital than patients suffering from any other mental illness. Thus it is a serious burden on our society.<sup>1,2,3,4</sup>

Early detection of "potential" schizophrenics is important both in view of possible prevention of psychotic breakdown and in improving the prognosis.<sup>1,2,3,4,6,7,8,10</sup> Many of these patients are not so much maladjusted as they are inadjustable.<sup>9,11,12</sup> Why, then, are such patients not recognized? Why are they improperly cared for until late in the disease process, often as late as several years? And why is the patient finally hospitalized not chiefly because of mental illness, but because he has become unmanageable to the family and the community?<sup>2,4,5,7,8</sup>

One important reason is the serious nature of the disease which makes many physicians reluctant to make such a diagnosis.<sup>11</sup> Then, in the doctor's office the patient, who frequently presents himself with some vague, bizarre complaints, is often branded as "neurotic" and is given some nonspecific medical or even surgical treatment.<sup>5,8,11</sup> Another element is that there is often a chronic onset, frequently without a definite precipitating factor, and thus patients are not detected until the disease is well advanced.<sup>4,13,14</sup>

Often the illness makes its first appearance during adolescence, with approximately 75 per cent of the patients within the age range of 15 to 25 years, making the signs and symptoms typical of that age.<sup>9,10,13,15</sup> Moreover, early signs and symptoms are not necessarily characteristic; they must be evaluated against a proper background. As with some physical diseases, they must form a certain "constellation" in order to point out the diagnosis.<sup>7,8,13</sup>

Finally, it should be brought out that much is still unknown about the etiology, pathology, and prognosis of schizophrenia, and that the early as

well as the full-blown clinical picture often varies so widely that the possibility emerges that schizophrenia is not one disease.<sup>1,3,8,16,17,18,19,20,21,22,23,24,25,26</sup> Sometimes this causes confusion among experts who, even with the help of psychological testing, are unable to make a definite diagnosis. With the advance of the disease process, signs and symptoms become more specific. However, it is beyond the scope of this paper to describe such advanced symptoms as hallucinations, ideas of reference, and catatonic manifestations.

Despite many difficulties, the early diagnosis of schizophrenia can be made more frequently, and thus many future complications, which may be irreversible, can be prevented or allayed. In a sense, the general practitioner, to whom this paper is largely directed, is in a favorable position to discover these patients. Usually he has first-hand information about the patient's family background, interpersonal relationships, work record, interests, and recent changes in behavior, which can provide important clues toward the diagnosis of this disease. Furthermore, a high percentage of these marginally adjusted people are seen in the average practice because of undue worry over their physical condition.<sup>1,2,3,4,5,6,7,8,9,10</sup>

It is the purpose of this paper, while not going into detailed consideration of differential diagnosis, to outline a number of clinical observations which may lead to the early diagnosis of schizophrenia.

### **Diagnostic Features**

The family background, which establishes basic social patterns, is important to keep in mind.<sup>25,26</sup> Although the nature of the family influence is not exactly determined, Kallman presented some interesting figures which suggest a possible genetic factor. He showed that incidence is higher if one parent is schizophrenic (16.4 per cent) and is much higher if both parents are schizophrenic (68.1 per cent). He hinted that the closer an individual's genetic relationship to a schizophrenic, the greater becomes his likelihood for schizophrenia. For example, if one dizygotic twin has schizophrenia, the possibility of the other twin getting the disease is 14.7 per cent, whereas if the twins are monozygotic the possibility is 85.8 per cent.<sup>18,28</sup>

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This is one of 11 theses, written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Zee is now serving his internship at St. Luke's Hospital, Kansas City, Missouri.



It is also interesting to note the schizophrenic's parents' personality types. Many workers have pointed to the peculiar mother-child relationship which is common to almost all schizophrenics.<sup>16, 17, 25, 27, 30, 31</sup> These "schizophrenogenic" mothers seem to lack understanding of the emotional needs of the child, making it difficult for him to establish his independence.<sup>17, 25, 29, 31, 32, 33</sup> Since she is basically insecure, the mother compensates by aggressiveness, efficiency, and quasi-responsibility, and thus she becomes the dominant adult figure in the home.

Apparently she projects her own insecurity into her child, which makes her overprotective, allowing him little independence. She dresses the child until he is six or eight; she takes an eight-year-old child to and from school; she supervises his play and social life for fear that harm may be done to him; and, not too infrequently, she even demands to know his private thoughts. Her overconcern about his physical well-being may cause her to be unnecessarily preoccupied with his health and create in him a poor body image. Not infrequently he is regarded as a weak and sickly child.<sup>16, 17, 25, 31, 33</sup>

Another trait common in these mothers is their moralistic, self-sacrificing attitude. This is another important obstacle in the road toward normal independence for the child. Rebelling quite naturally against interference in his attempts at self-assertion, the child is made to feel guilty by his mother's self-righteous attitude, particularly since she is making such a "sacrifice" for his "benefit."<sup>31</sup>

The child's dependency on his mother as a result of her over-mothering attitude becomes even more a liability as a result of her threatening attitude, which makes the child fear he'll lose his parent through either death or desertion. The child reacts to this by exerting all his energy toward preventing the loss of his "protection" and love-object.<sup>16, 17, 25, 26, 29, 31</sup>

The child stands rather alone in this subtly subversive though socially well accepted love affair, for his father, if present, may well be a secondary figure in the home. When the father does try to predominate, he does it in such a tyrannical fashion that he is offensive, still leaving him an outsider. He may be described as disinterested, quiet, friendly, "nagged at," ineffective, passive, retiring, or weak (though not necessarily weak outside the home). His wife often shows a disregard for his value, and the child frequently feels sorry for him.<sup>16, 17, 25, 29, 31</sup>

It is not surprising that such experiences as those of overdependence, threatened loss of this dependence, and attempts of self-assertion, in the absence of an adequate paragon to turn to, result in a deranged picture of love, guilt, fear, and hate. All of this, after sufficient stress, may lead to a withdrawal from reality, the psychosis. Therefore, the person is insecure,

distrusting reality and withdrawing into his own fantasy life for satisfaction. Here his thinking is no longer guided by the conventional frame of reference. Also, the person cannot have an adequate sex identification in such a family situation.<sup>4, 11, 21, 25, 27, 29, 33</sup>

What can be said about such a person's interpersonal relationships? That is, how does he get along with his fellowmen? Typically he is described as a person who is preoccupied and prone to withdraw into himself, reacting inappropriately in a given situation. It is true that many introverts become schizophrenics, though a sizable number of schizophrenics are truly extroverts or ambiverts with good social contact.<sup>1, 3, 4, 6, 7, 8, 23, 24, 33, 34, 35</sup> It is in the group of extroverts and ambiverts that the diagnosis of schizophrenia is difficult.<sup>4, 10</sup>

In general this person suffers more from his fellowman than is usually imagined. He may appear calm or indifferent, frequently out of proportion to the situation; or he may appear overly friendly, reflecting a difficulty of controlling his sadistic-destructive impulses. But in either case there is an underlying tension which produces a feeling of uneasiness in the person dealing with him.<sup>5, 10, 11</sup> Temper tantrums or "unassuageable anger," often directed to some member of the family and out of proportion to the precipitating incident, probably are the result of severe frustration. Also it is observed that he may callously adhere to rather peculiar ideas which he will not sacrifice even in the face of reason.<sup>6, 13, 14</sup> Because of his low self-respect, he frequently appears somewhat suspicious of others, and a practical joke or a remark about him may give rise to strange interpretation, or a brooding feeling of being persecuted.<sup>6, 19, 13</sup> He seldom has established an intimate friendship, in fact he may actually say that he has no feeling for people. Thus it may be found that as an early adolescent he played with children much younger than he, that later he seldom dated, and that he took part in few social activities.<sup>5, 9, 15</sup>

Many schizophrenics are not married, and the marriages of others have not been very successful. The schizophrenic is not a good candidate for marriage because of his incompetence in communication, vague sex-identification, poor frustration tolerance, and the flatness of his emotions.<sup>5, 17, 25, 31</sup>

In his work the patient may show a good record. Since he devotes so much of his energy toward gaining security, he may achieve more than his parents or siblings. Usually the nature of his work is such as to require little interpersonal contact, and he may get along well in such a situation. However, not infrequently, signs of decompensation occur following a promotion or change of environment. The breakdown was often noticed in the military service. Typically here many had joined in an attempt to assert inde-

pendence from their mothers, or upon the suggestion of others who thought that military life would do them some good.<sup>6, 10, 14, 16, 36</sup>

Also suggestive of early schizophrenia is a history of frequent changes of jobs or of holding a job inferior to the patient's abilities, e.g., a college graduate doing grocery clerk work. The explanation for such an incongruous act is usually that he was slighted by his superior, or that he couldn't get along with his fellow workers, or that he was given unpleasant work to do.<sup>5, 6, 12, 13, 14, 16</sup>

Mention has been made of the schizophrenic's overconcern with his physical health. Apparently reality's disturbing influence on the patient is expressed in bodily complaints, thus giving him a sense of relief by being able to blame his guilt or anxiety on something for which he is not responsible.<sup>3</sup>

Another somewhat different explanation might be what Sullivan calls an inadequate means of "selective inattention." We receive numerous stimuli from our environment, some of which are significant while others are irrelevant. Normally, by means of selective inattention, we can exclude the irrelevant from our attention and see to it that the relevant is properly cared for. In the schizophrenic, however, there is a confusion of what is relevant and what is not. This imposed on a poor body concept may explain why he produces vague, bizarre complaints which are often difficult to pinpoint.<sup>26, 37</sup> These complaints usually closely follow some stressful situation. The person may also be susceptible to suggested illness.<sup>11, 25, 26, 27, 31</sup>

### Case Report

A 27-year-old toolworker seen in this clinic presented himself with a complaint of bloody urine for several days. There was no history of fever, back-pain, dysuria, polyuria, or nocturia, but the patient did volunteer the information that a few days earlier he had passed a hair in his urine. It was noted that the patient expressed concern about his genitalia and wondered if they were all right. The only positive finding was a questionable suprapubic tenderness. Urinalysis, blood-urea-nitrogen tests, complete blood count, intravenous pyelograms, and cystoscopy were all within normal limits.

Since no physical pathology could be found, a more extensive history was taken from the patient. During this interview the patient wondered if the symptoms could be produced by constipation building up too much pressure "down there." Also he thought that this "pressure" had affected his vision by making his eyes pop out and pull on his nerves each time he defecated. Lately, he said, he had been able to prevent that by pushing his thumbs on his neck each time he bore down.

From his wife we learned that she had never seen any bloody urine from him, that the patient's brother had had a teratoma removed a few months earlier, and that the patient had expressed some concern about this being familial. The patient at this time was without work because it was too heavy for him, and his foreman had refused to give him something lighter to do.

### Physical Examination

A few words should be said about the physical examination. Generally the patient may be somewhat carelessly dressed, and his attitude may be one of indifference, although a state of tension is revealed in a general increase in muscle tone, perspiration, flushing, localized fibrillation about the mouth and eyelids, tremors of the extremities and, if the patient is undressed, shielding of the genitalia. During the examination he may ask many questions about possible peculiar findings, or he may want to know the reason for every question that is being asked. His answers are guarded and, although he talks easily about generalities, he will say little about his personal life.<sup>7, 9, 10, 11, 12, 13, 38</sup>

We are greatly indebted to Bleuler for what he called the fundamental symptoms of schizophrenia.<sup>39</sup> They consist of: (1) Looseness of association of ideas whereby the patient no longer is guided by custom, causality, or similarity to express himself, and which results in loss of the central thought;<sup>40</sup> (2) Disorder of affect, the most important of these symptoms. Here emotion-laden complexes, which are unconscious, influence the normal train of thought, and there may be discord between thought content and the expressing of it;<sup>40, 41</sup> (3) Autism, in which the patient thinks in a manner which is incongruous with reality—a highly personalized way of thinking, again guided by complexes;<sup>30, 40, 42</sup> (4) Ambivalence, where the opposites of affect or will are poorly integrated.<sup>40</sup>

Looseness of association is difficult to detect in the early schizophrenic, especially for the inexperienced interviewer. Very little that is said by the patient seems to be pertinent, and there is a gradual shifting of topics which leads one nowhere. At one diagnostic conference here it was surprising that no one could offer any quotation of any size from the patient to be presented, apparently due to the subtle way in which he was able to talk in a loose manner, yet coherent enough to escape the observer's awareness.

A 26-year-old engineer, who suddenly left a job where he had done excellent work and where he had made rapid progress both in status as well as economically, gave the following story: "Well, the real reason why I left was because I felt I could do better



somewhere else. So I quit and went to stay with my mother for a while." No plans for the future were made, and all he did was remain in his mother's apartment. A lack of causality is noted here.<sup>43</sup>

The use of metonyms, or imprecise terms, is another common disorder of association. "The kitchen is always in such a mixture (mess) you just cannot stand it." The patient seems completely unaware of these strange terms.<sup>40, 43</sup>

Interpenetration of themes is the mixing of one idea, such as a question, with a thought-occupying complex. For example: Question—"When did you last see your mother?" Answer—"My mother always has had great plans for me."<sup>43</sup>

Concreteness, or the inability to think abstractly, is a common manifestation of looseness of association. "Is your husband still with you?" was asked of one patient who had been talking about divorce. "No, you are with me," the patient replied. Or, "Mr. H., what brought you to the hospital?" Answer, "My car." A useful method of detecting concrete thinking is to ask the patient the meaning of a well-known proverb—his response will be a literal interpretation.<sup>44</sup>

The occurrence of a sudden interruption in the middle of a sentence, only to resume after a few seconds on a different subject, is called blocking, which is considered a diagnostic sign in schizophrenia. "Thought deprivation" is a good description, and most patients experience it as such.<sup>41</sup> The patient who demands to see the doctor because he has something important to say, yet when given the opportunity comes up with some minor complaint, or does not know what to say at all, probably is experiencing some of this thought deprivation.<sup>39</sup>

The disorder of affect not only concerns the thought derangements just described but also results in the lack of depth of feeling noted in these patients. There is a dearth of color, a certain flatness or indifference, in the way they express themselves. The patient may actually say, "I am bored," or "I just cannot get interested in anything," or "I have never been able to love anyone," or worse yet, "Sometimes I feel completely estranged from people," which is more of a displacement. Frequently this is described as "depression," but it is not, for the patient does not necessarily feel blue or sad, and there is a lack of depth.<sup>5, 14, 34</sup>

Incongruity between thought content and the expression of it is common. The patient may giggle inappropriately while talking about some serious matter, or he shows excitement or concern when this would be indicated. The apparent explanation is that the affects are fixed to the unconscious complexes and thus are not available for conscious expression.<sup>39, 40, 41</sup>

Autism is the highly individualized use of words so that they are no longer understood by others, even those close to the patient. Words are given qualities which no longer agree with reality or with the socially accepted use of them; there is no "consensual validation." A healthy 17-year-old boy was found walking along a railroad track and explained in an off-hand manner that school wasn't good for his "health." A 48-year-old married man insisted that his newborn child be brought up by his parents as as they were "old and about to die." These patients used their autistic language to justify some peculiar action.<sup>37, 39, 40, 42</sup>

How does schizophrenia differ from psychoneurosis, a diagnosis too frequently made in general practice?<sup>4, 5, 8, 11</sup> The diagnosis is not too clear, especially since the prepsychotic patient frequently uses neurotic means to solve his problems.<sup>7, 8, 14, 26, 36, 45, 46, 47</sup> We shall not go into a detailed account here of the differential diagnosis, but we feel that a few principal differences should be mentioned. Freud once wrote: "Neurosis does not deny the existence of reality, it merely tries to ignore it; psychosis denies it and tries to substitute something else for it."<sup>48</sup>

It must be understood here that our patient, the early schizophrenic, although he denies reality, has substituted little for it as yet. In his interpersonal relations the psychoneurotic is adequate, being less prone to withdraw, able to establish intimate friendships, while being aware of social mores. If he is suspicious, it is founded on a sound basis, and delusions are not so bizarre and are due to some genuine misunderstanding.<sup>45, 46, 47</sup> He is generally susceptible to logical argument. His physical complaints are coherently, though perhaps incorrectly, explained, so that the examiner has no difficulty following him. The patient has an awareness of his problems, which are less diffused but more focalized, and he shows a genuine concern for them. Finally, the "fundamental symptoms" have little to contribute here.

## Summary

The diagnosis of early schizophrenia can be made frequently, and thus severe future complications can be prevented. Some reasons are given why this condition is not recognized—the doctor's reluctance to make the diagnosis; the careless use of the term "neurotic"; the fact that most cases occur in adolescence with the result that the patients are regarded as having problems typical of that age; the lack of characteristic signs and symptoms; and our lack of understanding of schizophrenia.

The following diagnostic features are mentioned: (1) the family background with particular emphasis on the mother-child relationship; (2) the patient's



interpersonal relationships; (3) his work history; (4) his bodily complaints; (5) a brief discussion of Bleuler's four fundamental symptoms along with some illustrations.

Finally, a brief comparison is made between schizophrenic features and those of psychoneurosis.

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A 6.6 per cent increase in traffic injuries in 1957 more than offset the slight decrease in highway fatalities, according to statistics compiled by The Travelers Insurance Companies.

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American medical colleges had a record enrollment of 29,473 students in the 1957-1958 term.

## PHYSICIANS' ACTIVITIES

A portrait of **Dr. LaVerne B. Spake**, who served on the faculty of the University of Kansas School of Medicine for 33 years and founded the Department of Hearing and Speech there, was hung at the school last month.

**Dr. Fae H. Spurlock**, a fellow in the Menninger School of Psychiatry, 1954-1957, is now serving on the staff of the Division of Mental Hygiene of the Kansas State Board of Health on a part-time basis.

The Weston community entertained at a tea on October 26 in honor of **Dr. L. C. Calvert**, who has practiced in the community for 50 years.

**Dr. John I. Waller** of Halstead and **Dr. Robert W. Myers** of Newton participated in the program at a dinner meeting sponsored by the Harvey County Medical Assistants Society for their employers last month.

The city manager of Concordia has announced the appointment of **Dr. L. J. Ruzicka** as superintendent of public health for the city.

**Dr. Paul H. Lorhan**, former professor of surgery (anesthesiology) at the University of Kansas School of Medicine, is now in the Department of Anesthesiology, Harbor General Hospital, Torrance, California.

The Osawatimie State Hospital announces the appointment of **Dr. Hector W. Cavallin** as a member of its staff. Dr. Cavallin had been a psychiatric resident at the University of Kansas Medical Center before accepting the appointment.

**Dr. James A. Butin**, Chanute, who has served on the Neosho County Selective Service Board since 1948, was given a service award authorized by President Eisenhower at an appreciation ceremony last month.

**Dr. H. O. Marsh**, Wichita, recently spent a week at the Presbyterian Hospital in New York City studying advanced surgery of the hand.

The history and development of surgery was the subject discussed by **Dr. Albert E. Bair**, Independence, at a meeting of the Rotary Club there last month.

**Dr. Murray C. Eddy**, Hays, who has served as an advisor to the American Association of Medical Assistants during the past four years, was given an engraved plaque of appreciation at the annual meeting of the organization in Chicago last month.

**Dr. Roger K. Wallace**, Manhattan radiologist, has been notified by the Atomic Energy Commission that he has been certified in the diagnostic and thera-

## DEATH NOTICES

THOMAS ELMO SMITH, M.D.

Dr. T. E. Smith, 80, an honorary member of the Montgomery County Medical Society since 1947, died at Mercy Hospital, Independence, on October 21. A graduate of Kansas City Medical College in 1904, he began practice as a general practitioner and 10 years later limited his work to the eye, ear, nose, and throat specialty, retiring in 1947. He served as a representative in the Kansas legislature for two terms.

ERNEST ELWOOD TIPPIN, SR., M.D.

An eye, ear, nose, and throat specialist, Dr. E. E. Tippin, Sr., 67, died at his home in Wichita on October 30 after a month's illness. After serving in the Army in World War I, he completed his medical education at Rush Medical College, Chicago, and began practice in Wichita. He was a diplomate of the American Board of Otolaryngology and a member of the American Academy of Ophthalmology and Otolaryngology and of the American Society of Ophthalmologic and Otolaryngologic Allergy. Among the survivors is a son, Dr. E. E. Tippin, Jr., who is also a physician.

WALTER JAMES SINGLETON, M.D.

A retired LaCrosse physician, Dr. W. J. Singleton, 65, died in his car on November 7, apparently the victim of a heart attack. He was a member of the Rush-Ness Medical Society. Dr. Singleton was graduated from the St. Louis College of Physicians and Surgeons in 1921 and had practiced in Kansas since 1922.

peutic usage of  $I^{131}$ ,  $P^{32}$ , and cobalt<sup>60</sup>. An isotope laboratory under Dr. Wallace's supervision has been set up at the Riley County Hospital, Manhattan.

A certificate was issued last month to **Dr. Richard C. Ye**, a member of the staff of the University of Kansas School of Medicine, naming him as a diplomate of the American Board of Plastic Surgery.

**Dr. Thomas L. Hill**, Arkansas City, is discontinuing his practice there and is moving to Iowa.

The treatment of mentally ill children in Kansas was discussed by **Dr. Charles M. Poser**, of the University of Kansas School of Medicine, in an article published in the *Kansas City Kansan* on October 29.

**Dr. Frank T. Cultron**, Salina, spoke on glaucoma at a meeting of the Lions Club there last month.

A paper on teenage behavior, presented at a parents' meeting at the Garnett High School by **Dr. Ralph E. White**, was published in the *Garnett Anderson Countian* at the request of teachers and parents who heard it presented.

**Dr. Harry O. Anderson**, Wichita, told of progress in treatment of crippled children at a meeting of the South Central Association of Social Workers in Wichita last month.

**Dr. W. Graham Calkins**, Manhattan, recently became a diplomate of the American Board of Internal Medicine.

A reception given by the Kiwanis Club in Kansas City recently honored **Dr. L. L. Bresette** who has a 37-year record of perfect attendance at club meetings.

**Dr. Wayne E. Hird**, who recently began practice in Wichita, has been made a diplomate of the American Board of Surgery and of the American Board of Thoracic Surgery.

The value of hypnosis was discussed by **Dr. Norman H. Overholser** at a meeting of the Kiwanis Club in El Dorado recently.

**Dr. George Bascom**, who recently became a diplomate of the American Board of Surgery, is now practicing in Manhattan in association with his father, **Dr. Kellogg F. Bascom**.

A paper written by **Dr. Jesse D. Rising**, of the University of Kansas School of Medicine, for publication in *Postgraduate Medicine* was summarized in the October 27 issue of *Time*. The paper dealt with side effects of commonly used drugs.

**Dr. Howard C. Clark**, Wichita, gave an illustrated talk, "Medical Memories" at a meeting of the Woman's Auxiliary to the Sedgwick County Medical Society last month.

"New World Medical Care" was the subject chosen by **Dr. Thomas P. Butcher**, Emporia, for an address before the Commercial Club in Hartford last month.

**Dr. Monte B. Miller** is now practicing in Garnett in association with **Dr. Ralph E. White** and **Dr. Thomas M. Dougherty**. He is a graduate of the University of Kansas School of Medicine and during the past two years has been serving in the Air Force, stationed in Phoenix.

## Nursing Care

(Continued from Page 541)

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The National Foundation, in outlining 1957 activities, reported aid given to 57,800 polio patients at a cost of \$21,502,000. Some 53,900 patients had been stricken in previous years.



# Economics in Medicine

## *Importance of the Medical Assistant*

FLOYD F. WEHRENBURG, *Kansas City, Missouri*

In previous articles we have stressed the importance of proper office routines. However, we need to emphasize that no matter how efficiently you may plan the routines to be followed in your office, unless you have qualified assistants your efforts will be ineffective.

The value of the medical assistant to your financial success cannot be over-stressed. In his book *Public Relations in Medical Practice*, James Bryan states, "There is no position open to women in which they play a greater part *for better or for worse* in the success of their employers." Certainly, then, the wise doctor will obtain the services of the most highly qualified girl he can secure.

In many offices the medical assistant must be a "jack-of-all-trades." Consider for a moment that the average business office usually has a girl to do stenographic work or bookkeeping or reception work. In the doctor's office frequently one or two girls must do all of this and still learn to assist the doctor, do minor laboratory work and sterilizing, keep the office clean, collect, answer the telephone, and learn a new and highly technical vocabulary as well as a general knowledge of the type of diseases you treat, common symptoms that demand emergency treatment, and the like. An inexperienced or mediocre girl cannot learn to do all these things as they must be done. It would be far better to seek the best available and pay accordingly. An extra \$25 per month may mean the difference between efficiency and carelessness, between harmony and discord in your office. It may also mean a difference of several hundred dollars in your monthly collections!

Besides the necessary business qualifications, be sure you employ an assistant who has a pleasant personality and an ability to talk to patients. There are not too many people who can express themselves well and even fewer who can control a conversation and make the other person like it. If you have such a girl you are indeed fortunate.

It is also essential that you help her understand the importance of collections and the need for her to discuss finances with patients. There is little training available to prepare the medical assistant for her posi-

tion, so don't expect miracles from her unless you see to it that she is given instructions on how to handle her duties.

With the right assistant and proper routines, you will be able to keep collections under control most of the time. For those accounts which are delinquent, she may be able to set up a system of telephone collecting that will bring in some unexpected payments.

### **Using the Telephone**

A friendly telephone call after a patient has received several statements and letters may be just what it takes to collect the account. Have your secretary begin by saying, "Mr. Brown, we have sent you a number of statements and letters concerning your account, but haven't heard a word from you. Frankly, we are puzzled, Mr. Brown. Is something wrong?"

Your assistant will be understanding and cooperative, but she should also obtain from him a definite promise to pay before she hangs up. This promise, like all other promises regarding payment, should state *how* and *when* he intends to have the account paid in full. And if he fails to keep his agreement, she should be prompt with her follow-up. A good recall system can be set up to help her control accounts she is following.

If your policies are correct and you and your assistant are fulfilling your responsibilities toward explaining and collecting fees, there will be no reason for poor collections in your office. And obviously before any reliable financial program can be set up for your personal affairs, you must be realizing a just income from your practice. For this reason your fees and the collection of those fees are all-important. You owe it to your patients, your family, and yourself to give these matters careful consideration and see that they are handled ethically and effectively!

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In a traffic safety booklet, *The Road Toll*, The Travelers showed that one out of every 67 Americans was killed or injured in an automobile crash last year. Total casualties were 2,563,700, the highest total in history.

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Mr. Wehrenburg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

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In 1955, 8,130 pedestrians were killed in U. S. traffic accidents.

## THE MONTH IN WASHINGTON

*Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.*

The 86th Congress convenes January 7 with a top-heavy Democratic majority in both House and Senate. This, in turn, will find all Congressional committees, including those dealing in health bills, with a higher proportion of Democrats.

Because legislation rarely gets to the floor for a vote unless some committee sends it there, the make-up of committees is of considerable importance in any Congress. It will be doubly so in the 86th Congress, where so many new personalities and new ideas promise to abound.

In the Senate during the 85th Congress when the line-up was 49 Democrats to 47 Republicans, committees were fairly evenly divided—generally only one more Democrat than Republican. With the ratio in the Senate increased to 62 to 34, committee composition may run as much as 10 to 5 or 9 to 6 in favor of the majority party. The Reorganization Act of 1946 assures each senator of two committee assignments, which means 26 new places have to be found on Senate committees in January.

The party ratio for House committees likewise will run high in favor of the Democrats.

Each party and each branch of Congress has its own way of naming members to the many committees.

In the Senate, the Democrats make appointments through a standing 15-man group known as the Democratic Steering Committee. Its chairman is Majority Leader Lyndon Johnson, and other members are Senators Mansfield, Hennings, Chavez, Ellender, Frear, Russell, Hayden, Holland, Humphrey, Pastore, McClellan, Robertson, and Johnston of South Carolina.

The Republicans in the Senate make their appointments through a five-man Committee on Committees which in the last Congress was made up of Senators Knowland, Bricker, Saltonstall, Bridges, and Dirksen.

In the House, the selection of Democratic members is done by the majority members of the Ways and Means Committee which sits as a Committee on Committees. The Republicans have a different approach. When Congress convenes, each state delegation meets and names a representative to a Committee on Committees; he has as many votes on the committee as there are Republicans in his delegation. Chairman of the committee is Minority Leader Joseph Martin.

The House Ways and Means Committee which undoubtedly will be considering legislation of import to physicians (hospitalization of the aged under social security and tax deferrals on money paid into annuities) has for several years been divided 15 Democrats to 10 Republicans. This ratio may change to 17 to 8. In any event, seven members will not serve in the new Congress. One was lost through death, four through decisions not to run for re-election to the House, and two to defeat at the polls.

The Senate Finance Committee, which will be handling much the same legislation as Ways and Means, has been divided 8 to 7. It is certain that three Republicans will not serve again; two retired from the Senate and one was defeated in the recent elections.

House Interstate Committee, another group of importance to the profession because of its interest in federal aid to medical schools and Hill-Burton amendments among other things, has lost the three top ranking Republicans and the only physician serving on a committee dealing with health. Either they did not seek re-election or they were defeated at the polls.

Senate Labor Committee, which has jurisdiction over most of the major health proposals in the Senate outside of social security, loses three Republican members. Its present lineup of 8 to 7 will be changed too, probably to 10 to 5.

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Physician members of the 85th Congress number four. This is one less than in the 85th Congress. Returned again were Dr. Walter Judd of Minnesota and Drs. Thomas Morgan and Ivor Fenton, both of Pennsylvania. Defeated were Dr. Will Neal of Virginia and Dr. A. L. Miller of Nebraska.

One new physician has been added. He is Dr. Thomas Dale Alford, a board ophthalmologist of Little Rock, where he has been in active practice since 1948. Dr. Alford, 42, was educated in Arkansas schools and received his medical degree from the University of Arkansas. He served in the Army Medical Corps during World War II.

Dr. Morgan, who has been acting chairman of the House Foreign Affairs Committee since last summer, is slated to become chairman when the new Congress is formally organized. He will thus be the first physician chairman in the 136 years of the committee.

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Over 95 per cent of the vehicles involved in accidents last year were in apparently good condition. More than 85 per cent of the fatal accidents came during clear weather, 79.6 per cent on dry roads. These facts emphasize the factor of driver responsibility.

## BLUE SHIELD

A small increase in dues for Kansas Blue Shield became effective on December 1 for most of the Employee Group members in the state. Group members whose payment date is in December are being changed at this time, and all other groups will be changed on their next regular payment date. No changes are being made for the Non-Group or Farm Bureau members until some time next year.

This is the first time that Kansas Blue Shield dues have been increased since 1951, and it is necessary to make this small adjustment in order to continue to provide the present high level of coverage for Kansas members.

Two years ago the reserve funds in Kansas Blue Shield had reached a level that made it possible to add a number of important Blue Shield benefits at no increase in dues. Since that time, however, steadily increasing utilization has made it necessary to make this small increase in rates.

### Blue Cross Dues Also Increase

The adjustment in Blue Shield dues was made at the same time that a more substantial increase was found to be necessary for Blue Cross. *The amount of hospital services used and the cost of those services* are the two main factors which determine what Blue Cross-Blue Shield dues will be.

Officers of Kansas Blue Cross-Blue Shield point out that the last increase in Blue Cross dues for Employee Group members was in 1956, at which time benefits were also increased. The adjustment at that time was made to sustain hospital costs and member utilization until late 1958 or 1959. Since 1956, however, steadily increasing costs and utilization make these rates inadequate. Costs have increased even more rapidly than was anticipated, and more members than ever before have used their Blue Cross services.

Therefore, Blue Cross income from dues was no longer adequate to sustain payments for hospital benefits used by members.

For example, Blue Cross officers pointed out that in 1956 daily hospital charges in Kansas averaged \$19.34. In 1957, the per diem charge was \$20.70, and it is estimated that by the end of this year daily charges will have increased to \$22.15.

At the same time, the number of days of hospital care for each 1,000 members of Blue Cross has increased from 1,040 in 1956 to 1,172 days of care. Thus both the two main factors which determine dues have increased more than could have been anticipated, and it has become necessary to draw from reserves in order to help meet the hospital bills of members.

### Kansas Compares Well

Kansas hospital costs are lower than those in other regions. Obviously they are increasing, but Kansas hospital costs (on the average) are less than those in most other states. The daily hospital charges in others, as compared with Kansas are:

New England States .....	\$34.43
Mid-Atlantic States .....	\$26.42
South Atlantic States .....	\$24.25
Pacific Coast States .....	\$38.45
Kansas (1958 est.) .....	\$22.15

### To Control Costs

In an effort to explore hospital and medical economics in Kansas, the Kansas Medical Society, the Kansas Hospital Association, and the Blue Cross-Blue Shield Board of Directors several months ago organized a Joint Study Committee on Hospital and Medical Economics. In explaining the purpose of the committee it was pointed out, "In view of concern about the rising cost of hospital-medical care throughout the country, occasional difficulty in getting a patient admitted to the hospital, and the possible overuse of health insurance programs, these three organizations voluntarily set up the study committee."

One of the first actions of the group was the recommendation that committees of physicians be set up in hospitals throughout the state to examine actual hospital cases to help determine how health care plans are being used. Over 300 physicians and 145 hospitals are participating in this state-wide study of hospital usage. The careful examination of hospital cases is now under way in every hospital in Kansas, with physicians checking the records, finding the reason for admission, the length of stay, and the services used. They expect to learn whether overuse of hospital services exists, and if so, to what extent. It is hoped that once the results of the study are known, prompt action can be taken to correct any possible unnecessary practices.

New forms of medical treatment are thinning the ranks of patients in United States mental hospitals, according to the publication *Patterns of Disease*, prepared by Parke, Davis and Company for the medical profession. Striking statistical evidence is that in 1957 the number of patients continued to decline for the second successive year. The downward trend began in 1956 with about 8,000 fewer patients in mental hospitals than in 1955.

However, admissions continue to climb. For instance, there were about 3,000 more first admissions in 1956 than in 1955. *Patterns* points out that studies are needed to determine whether this is due to an increase in mental illness itself or "merely an increased use of expanding facilities."



## THE KANSAS PRESS LOOKS AT MEDICINE

*Editor's Note. In this section the JOURNAL reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

### OUR FAULT

Dr. Gunnar Gundersen, head of the American Medical Association, says that the high cost of medicine can "ruin voluntary insurance, and can imperil the private practice of medicine." For this he blames the doctors, the hospitals, the insurers and the patients.

The patients, Doc? But I guess he's right at that. We're suckers. Probably when we're half dead with flu or pneumonia we should simply say, "Nothing doing. I'll just lie here and die rather than submit to high cost medical care and outrageous hospital rates."

Strike! That's what we need to do. So if you happen to slip on the ice and break a leg next winter, don't let anyone call an ambulance, and don't go to the hospital. Just sit there in the snow till you freeze to death, or crawl home and set your own leg. That'll teach the medical profession a lesson.

Or, if you are taken to the hospital unconscious and if you are kept there for weeks against your will, just decline to pay when they roll you in a wheel chair to the cashier's window. Or, just say, "I'll settle for half. Not a penny more."

Or sometime settle your drug bill for half, and try getting drugs from the same source another time.

And yet, with all its seeming absurdity, there is a grain of truth in the good doctor's statement. For there would be no surer way to cheat the doctors, the nurses, the hospitals and the druggists than to quit the pace we are going, quit the racing with the Joneses, outlaw nuclear tests, outlaw war, bump along in last year's car, make do with the lounging chair that needs re-upholstering, go late to work, late to appointments, take a siesta every afternoon like the Mexicans, and don't do anything today that you can possibly do tomorrow.

In a society like that, the doctors and hospitals and druggists would soon be advertising their services half price.—*Marion Ellet, Concordia Blade-Empire, October 27, 1958.*

### CHECKUP OR BRUSHOFF?

We read repeatedly of major public figures going to their doctors for "a regular medical checkup." President Eisenhower did this a few days ago and

was found healthy and able to take the rigors of office and campaign.

But so often when one of us ordinary persons goes to our own doctor for a "periodic checkup" we get a brushoff instead.

Medical literature and public health officials constantly advise that the best way of preventing disease and ailments is to have such checkups. Like the Cancer Society's admonition, "Fight Cancer with a Check and a Checkup."

Many doctors, for reasons of being overloaded with work or for other reasons, don't seem to take this idea seriously. They take the individual's blood pressure, tap his chest to listen, ask if he has any complaints and then turn him out so they can deal with persons known to be ill.

Dr. Lester Breslow, chronic diseases chief of the California State Health Department, spoke up against this practice in a talk in St. Louis a few days ago. He said that it could be blamed partly on the shortage of doctors.

He added that this is a "major challenge" to the professors of preventive medicine in our medical schools. And we're inclined to agree. Too many times we have known of someone succumbing to cancer or some other ailment when a thorough physical examination a few months before would have revealed it and allowed time for treatment.—*Wichita Eagle, November 2, 1958.*

### Study of Irradiation Poisoning

Information on all recorded cases of chronic irradiation poisoning in human beings by certain internally deposited alpha emitters is being collected at the Radioactivity Center of the Massachusetts Institute of Technology. Records are being microfilmed and a punch-card system has been installed.

This information will be available for study and correlation of such items as the amount of internally deposited radioactivity, shortening of the life span, susceptibility to other diseases, and incidents of bone changes and tumors.

It is known that there are alive today large numbers of persons who have been harboring radioactive substances within their systems for more than 30 years. They are generally referred to as having cases of radium poisoning—internal deposits of radium, mesothorium, radiothorium, thorium X, thorium dioxide, or any combination of these materials. Some painted watch dials, some drank "Radithor," and others had injections of radium chloride, a type of accepted therapy in 1927.

Physicians who have information on such persons can aid in the study by sending information to the center at which the data are being recorded.

## BOOK REVIEWS

*Surgical Anatomy. Fourth Edition. By Barry J. Anson, M.A., Ph.D. and Walter G. Maddock, M.D. Published by W. B. Saunders Company, Philadelphia. 1105 pages. Price \$21.00.*

Edited by a competent team consisting of an anatomist and a surgeon, the book effectively correlates basic anatomy with good surgical technique and covers the anatomy of the entire body with excellent illustrations.

Complete discussion of the anatomy of an organ or region is given, then the surgical considerations are discussed. Surgical indications are gone over along with surgical involvements.

Topflight surgeons express their views and experiences on such subjects as procedures in regard to the complete extirpation of the regional lymph channels draining a malignant lesion.

The authors discuss incisions for different type procedures with respect to the anatomy and the possibility of what the operative findings may entail. Operative approaches and actual step-by-step operative techniques are discussed.

This book should be of much value to the advanced student, the resident, and the surgeon.—W.H.Z.

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*Emergency Treatment and Management. Second Edition. By Thomas Flint, Jr., M.D. Published by W. B. Saunders Company, Philadelphia. 539 pages. Price \$8.00.*

Dr. Thomas Flint, Jr., author of this book, is director of the Industrial Relations Division and chief of the Emergency Department of the Permanente Medical Group, Kaiser Foundation Hospital, Richmond, California. This book has as its primary purpose the aspect of emergency treatment when the physician is faced with the necessity of making vital decisions quickly with a minimum of laboratory aid, consultation, or solemn contemplation.

Included among emergency conditions which have new or modified methods of treatment are barbiturate intoxication, cardiac arrest, cold injuries, vasopressor resistant shock, and arterial damage. The section on pediatric emergencies is well written and has particular emphasis on those conditions in which there is marked difference in the treatment of infants or children as opposed to adults.

The grave menace of acute poisoning, especially in children, is written to include some of the recently developed fungicides, insecticides, and similar compounds whose toxic effects are not as yet widely known.

The increasingly wide use of Nalline in the deter-

mination of narcotic addiction and of blood tests for alcoholic intoxication are discussed in special sections.

The author believes that if good guides are utilized in the routine handling of emergency cases, successful suits against physicians will become less frequent. Because of this, there are sections of the book which include the topics of x-rays, suicide, examination for rape or criminal assault, abandonment, court testimony, and malpractice.

The topics are presented in outline form and necessarily are incompletely covered in many instances. The book serves well as a guide, although a standard book may be necessary to provide more information on individual problems. This book should be of value to any physician who is called upon to handle emergency cases and will be of particular value to the general practitioner.—D.R.P.

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*Negroes and Medicine. By Dietrich C. Reitzes. Published by Harvard University Press, Cambridge, Massachusetts. 382 pages. Price \$7.00.*

The first part of this study involves an analysis and compilation of statistical data and tables relevant to Negro applicants to medical schools and Negro medical students. These tables and percentiles are presented in detail as a prelude to the second part of the book in which a study of 14 sample communities is presented in relation to their degree and pattern of integration in medicine.

As indicated, this study has as its focal point the degree of integration of the Negro physician in the medical sphere in each of the 14 communities. It seems to be a comprehensive study and an objective one. Both sides of each situation in the particular community studied are presented to the reader.

The author's sources of information in each community seem most authoritative. Though the subject matter concerns itself with topics that have elicited various stereotyped comments from both white and non-white groups, the reader is given the material at its face value. The communities studied represent a cross section of the country. Various underlying factors throughout the study combine in a most unique way to effect different patterns in each community.

A most interesting point is evident throughout the book. The author seems to have succeeded in divorcing himself personally from the opinions, facts, and information he presents. This is a difficult feat to achieve in a book dealing with such controversial issues.

If at times we seem to be deluged with an overload of statistical data, the analyses that follow make the data more meaningful. Any reader of the book in my opinion will be a step forward in the topic of race relations in medicine, and also race relations in gen-

eral. The author has made a most significant contribution and aired many facets of thinking, facets that are important if integration in medicine is ever to be effected 100 per cent.—H.H.J.

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*Neurotic Distortion of the Creative Process.* By Lawrence S. Kubie. Published by University of Kansas Press, Lawrence, Kansas. 151 pages. Price \$3.00.

Doctor Kubie, a psychoanalyst, challenges the notions that genius and insanity are inseparably entwined, or that great creativity arises from neurotic roots. "The fact remains," he says, "that the processes of illness block and corrupt the creative act." The artist in any field creates in spite of his neurosis, not because of it, and creates less well than if he were freed of it. That the genius was, is, or will be psychotic simply points up the fact that "merely to be creative is not enough either to protect us from mental illness or to cure us."

The heart of Doctor Kubie's argument lies in his conception of the role of preconscious processes. It is from the electronic computer-like preconscious that creativity springs, not from the stereotyped, rigid, repetitive unconscious. In a section on education, he points up the need to free the "enormous potential" of the preconscious, and how some educational processes inhibit or stultify creativity.

Doctor Kubie has reason to know whereof he speaks. He has treated some of our more gifted and creative personalities, and shares these attributes with his patients. He writes interestingly, challengingly, and clearly.—P.W.T.

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*Technique and Practice of Psychoanalysis.* By Leon J. Saul. Published by J. B. Lippincott Company, Philadelphia. 244 pages. Price \$8.00.

This is an easily read, comprehensive text which incorporates much of the literature related to its subject matter as well as the author's broad understanding derived from his extensive experience both as a teacher of psychoanalysis and as a practicing analyst. In general what is presented is "classical" psychoanalytic technique, though the book does contain some modifications introduced by its author.

For the reader who wishes to properly understand this book, a thorough knowledge of psychoanalytic theory is essential. Other than the first chapter which is entitled "The Nature and the Goals of Psychoanalytic Treatment," this text is of limited interest to physicians in general. Its author intended it for candidates in training to become psychoanalysts and for those who are teachers of psychoanalysis.—C.M.E.

*Human Parturition: Normal and Abnormal Labor.* By Norman F. Miller, T. N. Evans, and R. L. Haas. Published by Williams and Wilkins Company. 248 pages. Price \$7.50.

This volume covers, as the name indicates, the fundamentals of obstetrics in outline form. It is designed and admirably suited for student use. The only chapter not definitely set up in outline form is one on uterine physiology and its function. This is not to say that there is not discussion of various features of obstetrical care, but rather that the discussion is condensed and concise in conformity with outline construction. It is adequately supplied by line drawings.

This book can be highly recommended for student use but should find considerable use in the hands of a practitioner who finds profit from refreshing his memory from time to time on the fundamentals of this practice. It would be an excellent thing to have in any hospital obstetrical department for an authoritative reference whether or not the institution is of the teaching type. In fact, non-teaching hospitals might have the greater use for it.—D.E.G.

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### Study of Central Nervous System

A systematic study of the central nervous system, to include research on multiple sclerosis, Parkinson's syndrome, amyotrophic lateral sclerosis, muscular dystrophy, cerebral palsy, epilepsy and other clinical entities, has been begun by the National Neurological Research Foundation through awards to scientists for five-year studies.

In the past, many scientists in the field have been unaware of the work of others, thus duplicating efforts. This project will serve to unify all studies of the diseases which have afflicted an estimated 20 million Americans and which rank third as a cause of death in this country.

The Foundation reports the following statistics on incidence: Parkinson's syndrome, 1,500,000 cases; cerebral palsy, between 500,000 and 750,000 cases with one-third of the patients under age 21; multiple sclerosis, 250,000 cases, the majority stricken between the ages of 20 and 35; muscular dystrophy, 200,000, half in children between the ages of 3 and 13; epilepsy, 1,500,000; senile psychoses, 25,000.

Another estimate of the Foundation concerns the cost of caring for persons so afflicted. For example, it is presumed that \$189,000,000 is spent each year for the care of persons afflicted with cerebral palsy. The cost of maintaining 50,000 epileptics in state institutions amounts to approximately \$35,000,000 per year.



## COUNTY SOCIETIES

A joint meeting of the Wyandotte County Medical Society and the Wyandotte County Bar Association was held at the Town House Hotel, Kansas City, on November 18. Speaker for the evening was Prof. F. J. Moreau of the University of Kansas School of Law.

Dr. Clovis W. Bowen, Topeka, took office as president of the Shawnee County Medical Society at a dinner meeting held at the Society's building on November 3. Newly elected officers are as follows: president-elect, Dr. William O. Martin; vice-president, Dr. R. Dale Dickson; secretary, Dr. Bartlett W. Ramsey; treasurer, Dr. G. Bernard Joyce; member of board of directors, Dr. Chester M. Lessenden, Jr.; member of board of censors, Dr. David E. Gray; members of medical service board, Dr. Joseph D. Beck, Dr. Joseph Gendel, and Dr. Ralph R. Preston; member of board of directors of Topeka Blood Bank, Dr. William R. Roy. The retiring president, Dr. Grey, was presented a plaque.

Mark Morris, D.V.M., was speaker of the evening. His subject was "Research and Development in Veterinary Therapeutic Nutrition."

A meeting of the Cowley County Medical Society was held at the Arkansas City Country Club last month. Dr. James F. Hammarsten, of the Oklahoma University School of Medicine, was speaker.

Physicians and lawyers of Reno County held a joint dinner meeting at the Prairie Dunes Country Club, Hutchinson, in October. Dr. John L. Lattimore, Topeka, was speaker. A film was shown to complete the program.

Dr. C. Arden Miller, of the University of Kansas School of Medicine, was guest speaker at a joint meeting of the Miami County Medical Society and the Miami County Association for Retarded Children in Paola on October 21. He discussed the care of handicapped children, the deaf, the cerebral palsied, the mentally retarded, and those with speech difficulties.

"The Cardiac in Industry" was the subject discussed by Dr. R. Emmet Kelly, medical director of Monsanto Chemical Company, St. Louis, at a meeting of the Sedgwick County Medical Society in Wichita on November 4.

## To Combat Food Faddism

A nationwide educational campaign to alert the public to a billion dollar food faddist racket was launched at the American Medical Association's public relations institute recently.

The campaign will be a cooperative effort of the American Medical Association, the Federal Food and Drug Administration, and the National Better Business Bureau. It will be implemented locally by state and county medical societies.

Representatives of these organizations taking part in a panel discussion said there are some 50,000 door-to-door vendors and "health" lecturers selling a variety of worthless products to a gullible public.

Oliver Field, director of A.M.A.'s Bureau of Investigation, warned that food supplement salesmen, using a "you are what you eat" pitch, are selling at high cost their inexpensive and ineffective combinations of peppermint tea, herbs, vegetables, vitamins, and minerals. Absurd health claims are made for everything from sea kelp to irradiated peat moss.

While the products themselves usually are harmless, great harm can result if the salesman leads the purchaser to believe they have the power to cure disease, and needed medical care is postponed.

Field said nutritional quacks operate through an appeal to fear and lure the unwary into buying their products by advancing the myths that all disease may be due to diet, that soil depletion causes malnutrition, and that modern foods are over-processed and therefore low in nutrients.

Food faddists, Field said, are also active in the overweight field, selling reducing "aids" which promise weight loss without dieting. Appetite depressants, bulk producers, "medicated" candies and cigarettes are among the worthless, and potentially dangerous, products offered.

The third lucrative field of the faddists includes "tonics," "rejuvenators," and "pep producers" to overcome "that tired feeling," "lost manhood" and other assorted and imaginary ills. Some even claim their products can cure cancer, diabetes, and other diseases.

Dr. Kenneth Milstead, director of the Division of Regulatory Management, Bureau of Enforcement, Food and Drug Administration, said the food faddist "threatens the lives as well as the pocketbooks of our people." Despite the high educational level of the American people, quackery and spurious schemes still thrive in all parts of the nation, and the acceptance of the faddists and their products is at the highest level in history. The food faddist makes the old-time medicine man a small-time operator; today's promoter is a sophisticated, smooth-talking individual who tosses medical terms around with authority and fools many intelligent individuals.

Dr. Milstead called for a vigorous public education campaign and more and better law enforcement to overcome the spreading blight of quackery. The nutrition quack, Milstead said, may be a cancer quack as well, and so the public must be protected by federal action as well as community action. He called for concerted efforts to strengthen state and federal laws in this area.

Maye Russ, director of the Drug and Cosmetic Division of the National Better Business Bureau in New York, pointed out that many food faddists utilize advertising in newspapers, magazines and on radio and television. One of the major obstacles in educating people about quackery is the widespread belief that "If it is advertised, it must be true."

Miss Russ outlined the activities of the 108 local bureaus of the National Better Business Bureau to promote truth in advertising and protect the public from fraudulence. The Bureau maintains a volume of "Do's and Don't in Advertising" for media, agencies, and advertisers and it urges advertising media to require proof for product claims. Bulletins citing products with unsubstantiated claims, considered to be against the public's interest, are sent to media by the Bureau.

Warren Whyte, an attorney in the A.M.A.'s law division, who served as chairman of the panel discussion, said cooperation between many volunteer agencies like newspapers editors' associations, radio and television broadcasters, and other groups has aided better policing of advertising. Many advertisements, particularly television commercials, have been turned down recently, he said, and others are being censored by advertising agencies themselves for the sake of accuracy.

### 35,000 Physicians Take Graduate Training

More than 35,000 physicians last year took graduate medical training in 1,400 American hospitals, it was reported recently.

According to the 32nd annual report on graduate medical education prepared by the American Medical Association's Council on Medical Education and Hospitals, the number of medical school graduates taking further training continued to increase in 1957-58.

There were 10,198 graduates serving internships in 1957-58, an increase of 305 over 1956-57, while 24,976 were serving residencies, an increase of 1,964 over the preceding year. The number of hospitals offering training increased from 1,372 to 1,400.

Of the available internship positions, only 17 per cent remained unfilled. Eighteen per cent of the residency positions were not filled, the report said. Many internship positions are filled by graduates of foreign medical schools.

The report also showed the following items:  
—The average number of intern positions for each hospital has increased during the past 10 years from 11.3 to 14.2.

—Rotating internships, which must include training on the medical, surgical, pediatric, and obstetric services, accounted for 87.6 per cent of the internships offered. The others were either straight internships in one field or mixed in two or three fields.

—Church and nonprofit incorporated hospitals offered 78.9 per cent of the available internships; federal hospitals, 4.7 per cent; nonfederal governmental, 15.3 per cent, and proprietary (private), 1 per cent.

—The federal hospitals had the highest rate of occupancy, with the Navy and U. S. Public Health Service hospitals having no vacancies.

—Hospitals in the United States territories and possessions and those in New England showed the highest rate of occupancy—88 per cent. The region having the lowest rate was the East South Central with 75 per cent.

—States with an occupancy rate of 90 per cent or above were New Hampshire, District of Columbia, New York, Colorado, Connecticut, Iowa, and New Jersey.

—The average monthly cash stipend paid to interns continued to rise. Hospitals affiliated with teaching institutions raised their stipends from an average of \$141 in 1956-57 to \$155 in 1957-58. Nonaffiliated hospitals raised theirs from an average of \$177 to \$197.

—Residency training was offered in 26 specialties and in general practice. Residencies in contagious diseases and malignant disease have been discontinued.

—Approximately one-third of all residencies were offered in surgery, internal medicine, and obstetrics-gynecology. Residencies in aviation medicine, dermatology, obstetrics-gynecology, ophthalmology, and surgery showed an occupancy rate of 90 per cent or higher.

### Accidents in the United States

Accidents, not illness, are the leading cause of death among Americans in the younger age group. This fact is revealed in a publication prepared by Parke, Davis and Company for the medical profession.

Accidents rank first as a cause of death among persons from one to 36 years of age. They also play an important role in the mortality of the aged, as illustrated by the fact that aging persons account for one out of every four accidental deaths.

Sex, too, plays a role. Evidence presented in the publication indicates that men are more "accident-

prone" than women. For instance, of the 93,443 people killed accidentally in one year, more than two-thirds were men. In fact, chances at birth that a man will lose his life in an accident before reaching the age of 65 are four in 100. This figure is more than twice the chance of death from pneumonia, influenza, tuberculosis and diabetes combined.

Where do fatal accidents most commonly occur? Motor vehicles head the list with home accidents second and accidents at work third.

Although the number of deaths and injuries from motor vehicle accidents has been increasing, the publication states, the death rate per 10,000 motor vehicles registered has "decreased dramatically" in the past 25 years. Estimations are, however, that over a 15-year period one person in every 10 will be killed or injured in a motor vehicle accident.

Automobiles and taxis together have the highest death rate of the modes of transportation. The figure is 2.7 per 100 million passenger miles, compared with 0.62 for airlines, 0.2 for trains, and 0.16 for buses.

Surprisingly, most automobile accidents occur in clear weather and on dry roads. Approximately 85 per cent of automobile accidents occurred in clear weather last year, and the roads were dry in more than 75 per cent.

The publication also explodes the much publicized myth about "women drivers," pointing out that on the average they have fewer accidents than men. Last year men were involved in close to 90 per cent of fatal and over 80 per cent of nonfatal automobile accidents.

## ANNOUNCEMENTS

American College of Allergists graduate instructional course and annual congress, March 15-20, Mark Hopkins Hotel, San Francisco. Write Dr. John D. Gillaspie, 2049 Broadway, Boulder, Colorado.

Postgraduate course in fluid and electrolyte balance, Wichita, February 7, 8, 9 under direction of Belding H. Scribner, associate professor of medicine, University of Washington. Purpose: to acquaint the general practitioner and specialist with a practical approach to the problem of planning parenteral fluid therapy. Approach based on bedside observations and simple bedside tests that the physician can perform with emphasis on the fact that the physician can treat fluid balance problems physiologically without extensive study of fluid balance and without expensive laboratory tests.

Morning lectures on fundamental principles of fluid and electrolyte balance and their application in diagnosis and treatment. Demonstration of simple bedside tests. Afternoon session devoted to group discussions on illustrative cases. Syllabus covering main points provided.

Registration for morning lectures not limited. Registration for afternoons limited to 40. Sponsored by Education Committee, Midwest Medical Research Foundation. All physicians invited.

First Chicago postgraduate course in arthritis and related conditions, full time, February 19-21, Thorne Hall, Northwestern University, Lake Shore Drive at Superior, Chicago. Tuition \$50. Faculty from all Chicago medical schools and elsewhere. Write Dr. Frank R. Schmid, 303 East Chicago Avenue, Chicago 11, Illinois.

Thirtieth annual meeting, Aero Medical Association, Statler Hotel, Los Angeles, April 27-29. General chairman, Dr. Charles I. Barron, Lockheed Aircraft Corporation.

Postgraduate course on diseases of the chest, Sir Francis Drake Hotel, San Francisco, February 16-20, under sponsorship of American College of Chest Physicians. Tuition \$100. Write the College, 112 East Chestnut Street, Chicago 11, Illinois.

Chicago Medical Society's annual clinical conference, March 2-5, Palmer House, Chicago.

Bulletins outlining requirements for certification, American Board of Obstetrics and Gynecology, available from Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

Twenty-second annual meeting, New Orleans Graduate Medical Assembly, March 2-5, Hotel Roosevelt, New Orleans. Clinical tour to Mexico following. Write Dr. Maurice E. St. Martin, 1430 Tulane Avenue, New Orleans 12, Louisiana.

Tenth annual postgraduate course in medical technology, January 5-7, University of Kansas Medical Center. Registration fee \$15. Write Department of Postgraduate Medicine, Kansas City 12, Kansas.













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